The Archaeology of 17th-Century Virginia

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Theodore R. Reinhart
Dennis J. Pogue
Editors

ON THE COVER

A brass thimble excavated near a mid-17th-century house foundation at Jamestown by John L. Cotter. In his report, Cotter wrote, "The archeologist's reason for excavating at Jamestown is that the real drama of daily life of the settlers — the life they knew 24 hours a day — is locked in the unwritten history beneath humus and tangled vegetation of the island. Here a brass thimble from the ruins of a cottage still retains a pellet of paper to keep it on a tiny finger that wore it 300 years ago...." Photograph courtesy of J. Paul Hudson.

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THE ARCHAEOLOGY OF 17TH-CENTURY VIRGINIA

Theodore R. Reinhart
and
Dennis J. Pogue
Editors

Council of Virginia Archaeologists

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FOREWORD

The papers in this volume were originally presented at the fifth symposium on Virginia archaeology, sponsored by the Council of Virginia Archaeologists (COVA) on May 10 and 11, 1991. The first four symposia in this series, and the resulting volumes, covered the prehistory of the state. This fifth symposium, however, was the first to deal with Virginia's historic period. Because of the success of the earlier prehistoric symposia, COVA's Public Education Committee, which has planned and organized the series, decided to extend its coverage beyond the original commitment to the prehistoric period to the historic period. This fifth symposium focused on the 17th century, and it was held in the location that epitomizes historic archaeology for both Virginians and the nation: Williamsburg. It was just down the road in Jamestown that historical archaeology began with the work of J. C. Harrington and his colleagues in the 1930s. In Williamsburg itself, both the Colonial Williamsburg Foundation and the College of William and Mary have had long-term historical archaeology programs. With these ties to the subject, it was without much debate that the committee accepted an invitation from Colonial Williamsburg to hold this symposium in the Hennage Auditorium at the De Witt Wallace Gallery.

The two-day program dealt with both Native Americans and European settlers and their cultures in the 17th century. It included papers on architecture, settlement patterns, and material culture, as well as on the archaeologists who have studied these things. The participants were chosen by the Public Education Committee from knowledgeable scholars in and outside of Virginia. In addition, in a departure from the prehistoric symposiums, discussants were asked to comment on the papers and to introduce other perspectives. Jeffrey L. Hantman of the University of Virginia, Thomas E. Davidson of Jamestown Settlement, Mary C. Beaudry of Boston University, Fraser D. Neiman of Yale University, and William M. Kelso of the Thomas Jefferson Memorial Association served in this role. We also were fortunate to have James Deetz of the University of California at Berkeley give us his thoughts on 17th-century Virginia. Although these comments are not directly reported in this volume, many of them were incorporated into the papers during subsequent rewriting for publication. In

addition to the comments of these discussants, a presentation at the annual meeting of the Society for Historical Archaeology in Kingston, Jamaica, in January 1992, also served to refine many of the papers. Unfortunately, three of the papers originally presented at the Williamsburg symposium do not appear in this volume. Their authors, for different personal reasons, could not complete them for publication. Dennis J. Pogue took the responsibility of collecting the papers, doing the initial editing, and proofreading. His contribution to this volume has been enormous: well beyond what he or we expected he would have to do. Although the help he gave is formally acknowledged by some of the authors, his efforts improved all of the papers and the volume as a whole.

Our thanks are first extended to the authors of the papers in this volume; their hard work has enriched Virginia archaeology. The many other individuals who contributed to the symposium and to this volume also deserve recognition and thanks. These include the members of the COVA Public Education Committee: Douglas Sanford of Mary Washington College (Chair); Mary Ellen N. Hodges of the James River Institute for Archaeology; Kurt Russ of the Laboratory of Archaeology at Washington and Lee University; M. Catherine Slusser, State Archaeologist, Virginia Department of Historic Resources; J. Mark Wittkofski of Gray and Pape, Inc.; and the editors of this volume. In addition, Marley R. Brown III, of the Colonial Williamsburg Foundation, handled the local arrangements for the symposium; Russell E. Darden, Treasurer, Archeological Society of Virginia, handled the financial arrangements for the publication; and Howard A. MacCord, Sr., Chair, Publications Committee of the Archeological Society of Virginia, helped with proofreading.

Finally, the publication of this volume was supported in part by grants from the Virginia Foundation for the Humanities and Public Policy and the Mary Washington College Center for Historic Preservation. That support is acknowledged with sincere appreciation. The major part of its cost, however, has been borne by the Archeological Society of Virginia. The society has been the major financial supporter of this series, and without that support these volumes would not have been possible and Virginia archaeology would be considerably poorer for it.

Theodore R. Reinhart
College of William and Mary

PREFACE:
THE HISTORICAL ARCHAEOLOGY OF 17TH-CENTURY VIRGINIA

In reviewing some books on childhood in the Middle Ages (New York Review of Books, June 13, 1991), Maurice Keen, Tutor in History and a Fellow of Balliol College, Oxford, made this cogent observation:

> The past is a foreign country with norms and behavioral patterns alien to our own. Such norms and patterns are mutable factors, culturally constructed, and to understand the human and social relations of past societies we must reconstruct them in their own terms. But...we should never forget that the people who live in the "foreign country" were human beings like ourselves, with feelings, urges, and preoccupations comparable with our own, even though in their different circumstances they may have expressed them differently.

As we consider the structures and artifacts of the 17th-century settlers in the Chesapeake Tidewater area, and review the documentary evidence of their lives, the first thing that arrests our attention concerning the transition from frontier to established settlement is one stark fact: the incredible mortality of the first settlers and the tenuousness of human life well toward mid-century.

In turn, this mortality placed upon the surviving children the early burden of responsibility for themselves and the surviving family members. Boys took on the responsibilities of men if their fathers died and left a farm or plantation — witness Thomas Jefferson in the next century — and girls became women of the household or found themselves employed in other households as servants, or wards. The poorer boys were quickly apprenticed. Such circumstances were to form the basic independent character of Americans to come.

Archaeology, then, is carried out among a number of historical givens, and is sometimes as significant for what it does not reveal as what it does. This the archaeologist must understand as well as the techniques of field work. The humanity which he or she feels toward those whose community is uncovered is

the measure of how much will be contributed to scholarship and the understanding of the past.

If the archaeologist can but perceive the hints that structures and artifacts and land uses contain with regard to the needs and foibles and aspirations and frustrations of the people who lived with them, the lives of the 17th-century Tidewater people may be meaningfully illuminated, if flickeringly. And what is not in the archaeological evidence or but dimly shadowed there, tends to be overlooked. The mere fact that so few objects associated with childhood, for instance, have been recovered from Jamestown or elsewhere in the Chesapeake of three to four hundred years ago bears out the relative brevity and austerity of many childhoods. The few tokens of toys or youthful pursuits or interest that we do encounter take on a more poignant meaning. A bronze thimble I excavated from a ditch bottom at Jamestown in 1956 had preserved in it a little wad of paper which, flattened out, showed a childishly scrawled "A" — the sole direct evidence discovered to date at that site of a little girl's life and loss in the remote 17th century.

In this admirable collection of articles the reader may find much new technical information on data gathered and analyzed. More sophisticated means of handling archaeological evidence constantly adds to the value of field and laboratory work. But in the end it is up to the reader to consider the whole record of the area and the times and to perceive what evidence there is and is not, and what questions have not yet been asked of it. As such, each volume of archaeological data is an increment toward an ever-evolving goal: namely, the comprehension of the past on its own terms and, as humanity, on contemporary terms.

Here acknowledged is the modest evidence of initial cultural encounter between English and Native Americans, and it is noted that if all the European artifacts found so far in aboriginal graves were assembled, they would just about cover a laboratory table. History and artifacts suggest conflict, adjustment, and mutual acculturation in the 17th-century Chesapeake area. The archaeological hat is tipped respectfully to theoretical constructs. However, these articles offer no disquisition on cultural process per se. Soliloquies on temporal and spatial polarities, cultural trajectories, processual and post-processual analyses of functional or dysfunctional future shock, and philosophical hermeneutics may be suggested to the reader, but they are not herein projected upon the archaeological and historical evidence.

Coming to grips with major questions asked of history and archaeology here, Bragdon, Chappell, and Graham consider "what made Jamestown urban?" Here the researchers must peer into the entrails of my own 35-year old

Archaeological Excavations at Jamestown, Virginia to see what augury may be evoked from basemap and feature analyses. Here implied and stated are social history, dimly seen, the genesis of vernacular architecture and formal importations from England, plus the material culture which has since enticed the analyses of so many subsequent researchers of the Chesapeake. Here are the undiscovered fort buildings, most likely swallowed for the most part by the James River, the almost equally invisible evidence of pre-1640 James Cittie expansion downriver from the fort, the post-in-ground buildings that can't be traced for sure before mid 17th century, and the more durable brick foundation structures which cluster without any stylistic uniformity, in the last half of the century. Obviously John Smith's dream of a "great cittie" on Jamestown Island never took form. Space and events precluded that. Nothing in the Tidewater Chesapeake was truly urban.

The reader may thank the authors for a mercifully jargon-free text. By the same token, the reader may thank the authors the most for interpreting analyzed data so as to produce meaningful extension and clarification of the historical record, especially when it is lacking, imprecise, or skewed by selection — as in some inventories. Glimpses of food habits from garbage evidence are welcome, as well as a fresh look at tool usage, including military equipment. Above all, the authors do not proclaim important new data from ceramics and glass when the contribution is modest. Who did what with everyday objects, where and when, speaks pretty well for itself.

John L. Cotter
University Museum
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THE ARCHAEOLOGY OF NATIVE AMERICAN LIFE IN VIRGINIA IN THE CONTEXT OF EUROPEAN CONTACT: REVIEW OF PAST RESEARCH

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James River Institute for Archaeology

INTRODUCTION

The recent historiography of the early colonial period in North America exhibits an increasing concern with understanding the colonial experience as the product of interactions among a population comprised of multiple nations and ethnic groups. The treatment of native peoples in current scholarship stands in marked contrast to an earlier historical literature in which Native Americans were of little interest except as they were involved in the inevitable triumph of European civilization over the American continent. By the 1950s, dissatisfaction with this perspective led some historians to call for a new approach to the study of America's past — referred to as ethnohistory — in which the traditional disciplines of history and anthropology could "profitably be brought together to illuminate not merely the Indian in terms of white society or the Indian in terms of his own society, but each in his own terms and in terms of the other" (Cappon 1957:vii).

Subsequent years witnessed rapid growth in ethnohistorical scholarship on the experiences of native peoples and Native American-European relations in colonial America. Some of the works which followed assumed a moralist tone, reflecting the need to refute old myths in creating a "revisionist" (Fausz 1987) history. Unfortunately, some also effectively perpetuated a part of this mythology by selecting cultural data from diverse native societies along the

Eastern Seaboard and reassembling these into a monolithic "Native American culture" contrasted against the European image of the Indian. More recent scholarship reflects increasing recognition of the diversity of contact situations and Native American responses to contact, and acknowledges that native peoples were "active participants" (Merrell 1989a), or even "active determinants" (Hantman 1991) of the colonial experience (cf. Fausz 1985; Fitzhugh 1985; Wood, Waselkov, and Hatley 1989).

Despite these advances in American scholarship as a whole, some researchers maintain that even recent social and political histories of the Chesapeake region remain "narrowly Anglocentric and woefully deficient in the quantity and quality of information they include on Indians" (Fausz 1987:139). While this assessment may be accurate, it should be noted that an impressive body of information on Native American life in the Chesapeake has been generated through ethnohistoric research since mid-century. Significant contributors to the ethnohistory of native peoples who resided in the Virginia portion of this region include: Lurie (1959), Feest (1973, 1974, 1978), Rountree (1973, 1975, 1989, 1990), Turner (1973, 1976, 1982, 1985), Potter (1976, 1982), Fausz (1977, 1985), Waselkov (1983), and McCartney (1985, 1989) for coastal Algonquian-speaking peoples; Binford (1964, 1967), Boyce (1978), and Rountree (1987) for Iroquoian-speakers of the southern Interior Coastal Plain; Wilson (1983) and Merrell (1987, 1989a, 1989b) for Siouan-speakers of the southern Piedmont; Mouer (1983) and Hantman (1990) for the central Piedmont; and Cissna (1986) for the northern Piedmont and Interior Coastal Plain. With this work now available, a more complete, integrated treatment of the colonial experience in Virginia may soon be possible.

The scope of this paper is necessarily more limited. Although the Native American, European, and African American peoples who comprised colonial society in Virginia cannot be fully understood without reference to each other, the focus here is on native peoples and how their traditional cultures adapted in what Merrell (1989a:vii-x) has called the "Indian's new world," created as a consequence of the European invasion of the American continent. Further, this paper focuses on reviewing and evaluating the contributions of archaeological research on this subject. No narrative history of Indian peoples in Virginia is provided, since excellent treatments can be found in the ethnohistorical literature cited above. For the sake of brevity, this review also presumes the reader has some familiarity with native cultural systems in Virginia on the eve of European contact, a subject addressed in some length in a preceding symposium in this series (Reinhart and Hodges 1992).

With some notable exceptions, this review finds the contributions of archaeology in delineating the colonial experiences of Native Americans in Virginia disappointing thus far. For this reason, considerable attention is devoted to discussing how the present situation might be improved by adopting a more structured, comprehensive approach to comparative research on the Protohistoric and Contact periods statewide. Nonetheless, some of the more substantive contributions made by archaeological research in Virginia are discussed briefly. Work which has developed temporally sensitive typologies for the Protohistoric and Contact periods or has addressed the roles of depopulation and trade in shaping the lives of Native Americans in Virginia during the 16th and 17th centuries is treated in greater depth.

HISTORY OF ARCHAEOLOGICAL RESEARCH

The history of archaeological research on the Protohistoric and Contact periods in Virginia closely parallels the development of archaeology as a whole in the state. The course of archaeology in Virginia has been shaped by three main forces: (1) the early attentions of the Smithsonian Institution; (2) the continuous interest and activities of avocational archaeologists; and (3) the recent rise in the involvement of local, state, and federal governments in archaeological resource management.

Apart from Thomas Jefferson's 18th-century excavation of an accretional burial mound (Peden 1954:98-100), the earliest well-documented investigations of Virginia's archaeological record were instigated in the late 19th century. At a time when American archaeology was still evolving from a predominantly avocational pursuit to a more professional discipline (Willey and Sabloff 1980), Virginia, because of its proximity to Washington, was the focus of several investigations sponsored by the Smithsonian Institution. In 1889, William Henry Holmes initiated a "systematic examination" of the Atlantic slope, beginning with archaeological survey in the Coastal Plain of Virginia and Maryland. Over the next few years portions of the shorelines of the Potomac and Rappahannock rivers were examined by William Dinwiddie and Gerard Fowke of the Smithsonian (Potter 1982:102-104). Fowke (1894) also surveyed an extensive area within the drainages of the James and Shenandoah rivers in the Piedmont, Blue Ridge, and Ridge and Valley provinces and conducted excavations at several sites.

While these investigations are of only limited relevance to current archaeological research, they are of historical interest to the development of archaeology in America and Virginia. Indeed, their most striking weakness —

the lack of a scientific methodology to reliably determine temporal contexts or relationships — makes them of particular relevance to this review, since this deficiency led the early Smithsonian scholars to conclude that all Virginia archaeology was Protohistoric or Contact period archaeology. Fowke, for example, determined from his surveys along the James and Shenandoah rivers that:

> the aboriginal remains...pertain to the tribes who lived or hunted within this area at the beginning of the seventeenth century. If a more ancient population existed...[it bears] such a resemblance to those of a later period that differentiation is at present impossible (Fowke 1894:70).

Any archaeological research conducted in Virginia during the 30-odd years which followed the investigations of Holmes, Fowke, and Dinwiddie remains formally undocumented. In the early 1930s, however, the Smithsonian Institution again sponsored a series of investigations in the state which were in part specifically directed toward locating Indian villages named in the historic record. This work was conducted by David I. Bushnell (1930, 1933, 1935, 1937) who surveyed portions of the bottomlands of the James and Rivanna rivers in the Piedmont and of the Rappahannock and Rapidan rivers from the Piedmont downriver to the vicinity of Leedstown in the Coastal Plain. Unlike his predecessors at the Smithsonian, Bushnell was armed with some knowledge of the potential antiquity of the archaeological record in North America, and he recognized that the artifacts he encountered belonged either to a "late, or recent period" or an "earlier period" (Bushnell 1933:7). Still, his understanding of the material record of Native American life in Virginia was insufficient to accurately distinguish 16th and 17th-century settlements from earlier sites. A concerted effort to define chronological sequences in the state was not made until the early 1950s, when Clifford Evans (1955) and C. G. Holland (1955), respectively, undertook long overdue studies of temporal and spatial variation among Native American ceramics and projectile points.

The years between Bushnell's and Evans's and Holland's investigations saw the rise of an active community of avocational archaeologists in Virginia, many of whom joined together to form the Archeological Society of Virginia (ASV) in 1941. From the 1930s through the late 1970s, avocationalists were the group most active in researching the archaeology of the Protohistoric and Contact periods in the state. Much of the work accomplished during this period was encouraged by Howard A. MacCord, Sr., who, in his position as state

archaeologist with the Virginia State Library (VSL) from 1963 to 1976, oversaw many excavations jointly sponsored with the ASV. Important protohistoric or post-contact sites investigated during this period include Mount Airy, DeShazo, Camden, Owings, John Green, Hand, Hatch, Perkins Point, Crab Orchard, and Trigg (Appendix and Figure 1). Major excavations were also conducted at the Potomac Creek site during this era, initiated in 1935 by avocational archaeologist W. J. Graham and continued by T. Dale Stewart of the Smithsonian Institution.

As expressed by Carl Schmitt (1965:1) in his report on the Smithsonian's investigations at the Potomac Creek site, some interest in contact settlements during this period was generated by a desire to understand earlier occupation in the state by employing the "direct historical approach." Excavations conducted during the late 1930s and 1940s by the Archaeological Society of North Carolina and the University of North Carolina at Chapel Hill in the Virginia and North Carolina Piedmont also were ultimately directed toward this end (Wilson 1983:5). While this intent constitutes a form of research design, the other research goals which guided excavations in Virginia during this period are not clearly evident. Many excavations were initiated because a site was in imminent threat of destruction. Sites also appear to have been selected for excavation simply because of their high archaeological visibility — a factor which effectively ensured that Late Woodland, Protohistoric, and Contact period sites are well-represented in this body of work. The primary product of analysis following excavation was description of the material remains of Native American life, and little comparative analysis between sites was conducted.

In the most recent period of archaeological research in Virginia emphasis has shifted from site excavation to site survey. Avocational archaeologists also have been joined by a growing body of professional archaeologists affiliated with local, state, and federal programs; academic institutions; and private contracting firms. Both changes are largely explained by the development of federal cultural resource management (CRM) programs since the 1960s. These emphasize site identification for the purposes of registration and protection, and are presently the largest source of funding for archaeology and professional archaeologists in the state.

Despite the volume of work involved, CRM archaeology has contributed relatively little to our understanding of Native American life in Virginia during the Protohistoric and Contact periods. With an emphasis on site survey, CRM projects have added to the inventory of known sites dating from these periods, but mostly inadvertently. Project location, not research question, is the primary determinant for the majority of CRM surveys.

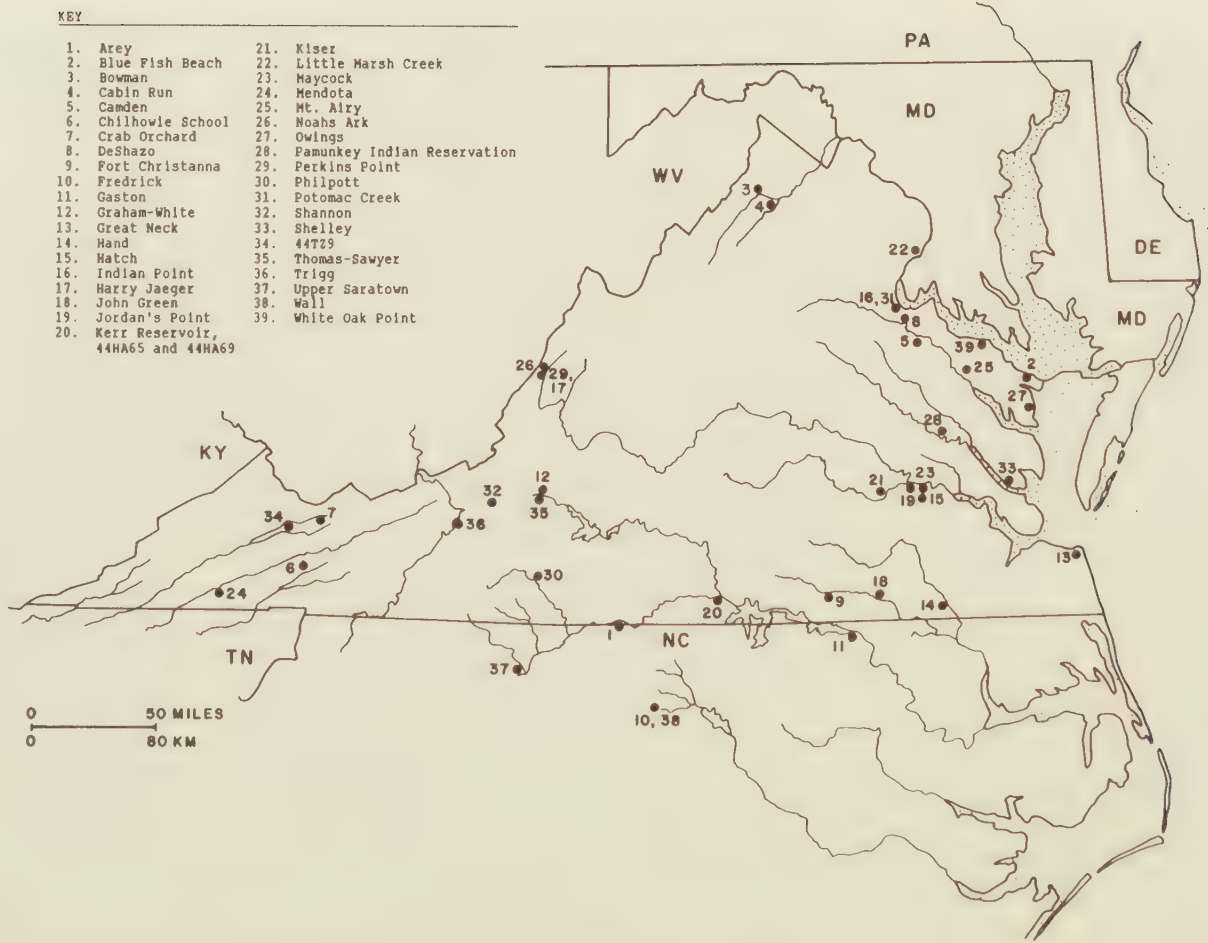

FIGURE 1. Archaeological Sites Discussed in Text (from Willett 1986)

More flexibility in the choice of project location exists in the federally-funded National Register program. The Virginia Department of Historic Resources (VDHR), the state historic preservation office in Virginia, in recent years has targeted three large properties for study, the Pamunkey Indian Reservation (McCartney and Hodges 1982), Camden Farm (Hodges and McCartney 1985; Hodges 1986), and Shelley (Opperman and Turner 1989, 1990). These sites were selected for their significance in relation to the Contact period. The VDHR also continues to conduct the Virginia Company Survey with the goal of identifying English colonial sites dating from the Virginia Company period (1607-1624) and Native American villages depicted on John Smith's 1608 map of Virginia (Opperman and Turner n.d.). The National Park Service's current development of a National Historic Landmark theme study for properties having the potential to inform our understanding of the Contact period in northeastern North America may encourage similar work in the future (Grumet 1992). This document recommends two Virginia properties, the aforementioned Pamunkey Indian Reservation and the Camden Farm, for designation as National Historic Landmarks.

In recent years, state-sponsored excavations have continued to be initiated in response to threats of imminent site destruction. Over the last 15 years, five sites dating from the Protohistoric or Contact periods have been investigated through areal excavation under VDHR sponsorship: Crab Orchard, Great Neck (44VB7) (Egloff and Turner 1984; Hodges 1990b), Jordan's Point (44PG300, 302, 303, 307, 315, and 333) (Boyd 1990; Mouer et al. 1992), Graham-White, and Thomas-Sawyer (see Appendix). While each site is an important archaeological resource, the choice of these particular properties was not made in relation to an explicit statewide research design.

With few exceptions, the problem-oriented research which has been conducted in Virginia on the Protohistoric and Contact periods was initiated through academic institutions, independent of the mandates of CRM legislation. Because academic departments in anthropology were slow to develop in Virginia, much of this research was coordinated through institutions outside the state. Examples of these projects include dissertation studies by Binford (1964), Turner (1976), and Potter (1982), who each employed archaeological and ethnohistorical data to examine changes in sociopolitical complexity among native populations in the Coastal Plain during the Protohistoric period. Binford's dissertation research also produced some of the earliest information on colonowares in Virginia (Binford 1965), a subject which was later examined more comprehensively by Henry (1980) in research conducted for the completion of her master's degree.

The investigations of Binford, Turner, and Potter are also important for the information each provided on site locations in areas for which 17th-century Native American occupation is well-documented in the historic record. Binford's archival and field research and later surveys by Smith (1984) produced considerable information on the locations of the historic settlements of the Nottoway, Meherrin, and Weyanoke Indians in southeastern Virginia. Although not specifically addressed as such in his dissertation, site location data and artifact collections acquired by Turner in the portion of his survey which concerned Richmond County should prove useful in future research on the historic settlements of the Rappahannock Indians along Totuskey Creek. The surveys by Potter and Waselkov (Potter 1982; Potter and Waselkov 1984) in Northumberland and Westmoreland counties are important sources of data on the historic settlements of the Wicocomoco and other groups who lived along the south side of the Potomac River. Similar to these projects was the four year program of extensive survey and testing along the Chickahominy River initiated in 1967 by McCary and Barka of the College of William and Mary, which was supported by a National Science Foundation grant. A preliminary report on this project, which compared the survey results to information on the location of early 17th-century Indian villages provided by the Smith and Zuniga maps, has been published (McCary and Barka 1977), and some of the ossuaries excavated during the project have since been examined by William and Mary students (Mann 1981). Archaeologists at Virginia Commonwealth University have contributed important survey data relevant to identifying Protohistoric and Contact settlements above the falls of the James River (Mouer 1983).

By far the most comprehensive program of research pertinent to the study of the Protohistoric and Contact periods in Virginia yet to be implemented is the Siouan Project conducted by the University of North Carolina, Chapel Hill's Research Laboratories in Anthropology (UNC) (Dickens, Ward, and Davis 1987; Davis and Ward 1991). Building on work begun by UNC in the 1930s, the project is explicitly concerned with studying cultural change among Siouan-speaking peoples of the Piedmont of North Carolina and southern Virginia ca. A.D.1525-1740. Several studies conducted by UNC graduate students in relation to the Siouan Project have involved re-examination of collections excavated some years ago in Virginia. In the early 1980s, UNC became the repository for the late Richard Graveley's extensive archaeological collection from the Virginia and North Carolina Piedmont. As the many later references to UNC's research attest, the Siouan Project stands as an excellent model for the type of research program needed for the study of the Protohistoric and Contact periods in other regions of Virginia.

TOWARDS A RESEARCH DESIGN

With some exceptions, archaeological research in Virginia has provided few insights into the ways Native American societies in the state responded to European contact that cannot be gleaned from a careful examination of the historical record and primary ethnohistoric accounts. This shortcoming can be explained by the fact that archaeology in the state has been fueled, for the most part, by salvage or CRM imperatives, and not by a research orientation. Thus, our efforts have generated much intriguing, but far from comprehensive, survey data. Available excavated data is extremely limited, and only rarely has it been derived from extensive areal excavation.

Archaeology clearly has unique potential to contribute to our understanding of Native American life during the Protohistoric and Contact periods, however. The archaeological record is the only source of information on Native American life in the vast area of the state west of the Blue Ridge prior to the mid-18th century. For the Coastal Plain and Piedmont provinces, it holds information on Native Americans that is not addressed in an historical record generated by ethnocentric European peoples whose interest in Indians was restricted largely to matters of defence, trade, and property rights.

The product of archaeology, however, should be more than cultural description. For the Protohistoric and Contact periods of Virginia, the most fundamental question archaeologists can address is what was Native American life like after European contact? Beyond this, we should uncover the processes involved in Native American adaptations to their "new world" which explain how and why native societies responded as they did. Ethnohistorians have tended to discuss the consequences of European contact on native peoples in dichotomous terms: some groups "survived," while European contact led to the "decline" or "demise" of others. These terms simplify great variety in the responses of Native Americans. By the early years of the 18th century in Virginia, some Native American societies had disappeared through death, acculturation, migration, or deportation. Some maintained a largely traditional cultural configuration, while others had formed new multi-ethnic societies. The ultimate question which archaeological research on the Protohistoric and Contact periods should address is what explains variation across the state in terms of the consequences of European contact on the state's native peoples? The rudiments of a comprehensive, statewide research design for answering this question are presented below.

The cornerstone of this research design is a theoretical orientation that conceives of Native American societies as adaptive systems in dynamic

interaction with their natural and social environments. This orientation structures the form of cultural description that must result from analysis of individual sites so that the information aids the study of culture process. Essentially, cultural description must be thorough and must recognize the interrelationships among the diverse components comprising cultural systems. A list of key elements that should be examined, at minimum, would include: intersite settlement structure and intrasite settlement size and plan; social and political organization; subsistence structure; population size, structure, and health; technology and material culture; and symbolic and ideological systems. Obviously, establishment of site chronology is also required. The research value of the product of salvage archaeology in Virginia could be considerably enhanced if care were taken in the choice and design of such projects to ensure they yield a comprehensive and cohesive body of data relating to each of these cultural subsystems.

The study of culture process and the search for an explanation of variation in the consequences of European contact on Native American societies is addressed through the construction of models of culture change and variation suggested by analysis of the historic record. The political, military, social, economic, and demographic history of Virginia describes a variety of contexts in which Native American adaptations occurred. For the purposes of a statewide research design, these contexts can be categorized by parameters structured along temporal and spatial dimensions that simplify variation for the purposes of analysis. These parameters essentially define key variables that presumably determined the trajectories of cultural development among native peoples after European contact. Certain of these variables have already been identified in the work of ethnohistorians and archaeologists, and these form the basis of the contextual framework outlined in the following section.

A SPACE-TIME FRAMEWORK

This contextual framework by no means addresses all factors which may be relevant to understanding culture process and variation among native peoples in Virginia after European contact. Instead, this scheme is structured along the dimensions of space and time, and into divisions which recognize and isolate certain key variables which have been cited in previous interpretive literature as explanations for the course of cultural development among native societies during the historic period.

Major differences between the cultural systems of native peoples in Virginia on the eve of European contact determine the initial partitioning of historic context along the spatial dimension. Ideally, a minimum of eight

geographic divisions, as shown in Figure 2, should comprise the framework. Because so little is known at present about the early years following European contact in most areas of Virginia west of the fall line, however, the five geographic subdivisions which comprise this area are subsumed in this discussion into two spatial divisions encompassing the Piedmont province and the Ridge and Valley and Appalachian provinces. In Figure 2, areas associated with major ethnic or sociopolitical groups identified in the historic record are identified by the name of that entity. Areas for which no tribal names were recorded are labeled by the name assigned to the major ceramic type associated with that region. It should be noted that the spatial divisions of this framework also recognize parameters of Virginia's natural environment, which presented opportunities and constraints that structured cultural systems.

The temporal divisions of the contextual framework (Table 1) address how a number of what might be termed "historical" variables affected Native American cultural adaptations after European contact. These variables include the timing of indirect versus direct intercultural contact, proximity of the contact situation, the progression of colonial settlement across Virginia, the development of the fur trade in the Chesapeake and western regions of the state, historical developments in areas outside of Virginia, and a few specific historical events. Because certain of these factors were expressed historically in a roughly times-transgressive fashion, moving generally east to west across the state through time, they are also addressed to some degree by the spatial partitioning of the contextual framework.

The Coastal Plain

A number of archaeologists and ethnohistorians have proposed schemes for periodization of the Protohistoric and Contact periods in the Powhatan culture area of the Coastal Plain, which includes the James and York drainages. These frameworks differ since some were developed to examine change, others to describe it. The structure of each reflects the type of change of particular interest to the researcher.

Combining elements of schemes developed by Rountree (1976, 1990), Turner (1985), Bragdon (1986:73-110), and Fausz (1991), the following temporal framework is proposed for examining Powhatan cultural development from the Protohistoric period through the end of the 17th century. The first period (1492-1570) recognizes the potential effect (for example, in terms of the spread of European diseases) of early 16th-century European exploration, fishing, and trading activities along the eastern coast of North America on native peoples of

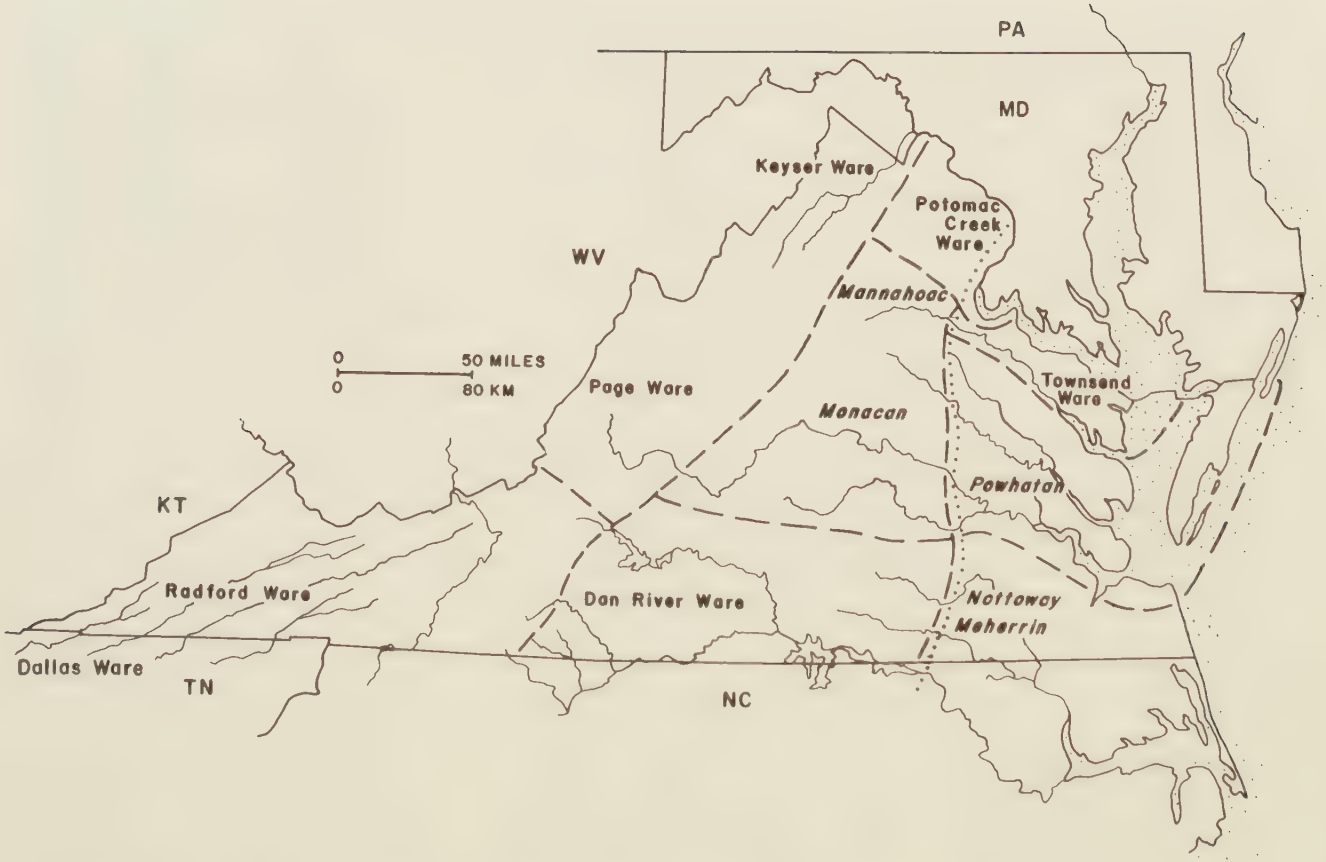

FIGURE 2. Major Native American Cultural Regions in Virginia on the Eve of European Contact (from Willett 1986)

COASTAL PLAIN PROVINCE: JAMES, YORK, RAPPAHANNOCK, AND POTOMAC DRAINAGES	COASTAL PLAIN PROVINCE: UPPER CHOWAN DRAINAGE	PIEDMONT PROVINCE	RIDGE AND VALLEY AND APPALACHIAN PROVINCES
1492 - 1570	1492 - 1570	1492 - 1540	1492 - 1540
1570 - 1607	1570 - 1607	1540 - 1625	1540 - 1630
1607 - 1622	1607 - 1650		
1622 - 1646		1625 - 1675	1630 - 1675
1646 - 1677	1650 - 1677		
1677 - 1705	1677 - 1723	1675 - 1710	1675 - 1750
		1710 - 1740	

TABLE 1. Temporal Divisions for the Protohistoric and Contact Periods in Virginia

the Coastal Plain. This period ends at 1570 when these populations experienced significant direct contacts with European peoples related first to the Spanish mission of Ajacan in Virginia and later to the English settlement at Roanoke in North Carolina.

The third phase is initiated by sustained direct intercultural contact, which begins in 1607 with the establishment of the English settlement at Jamestown. The termination date for this period (1622) presupposes that significant impacts from this settlement were experienced by the Powhatan, which led to their uprising against the English in that year. Following Turner (1985) and Bragdon (1986), the terminal date of the fourth period recognizes the loss of Powhatan political autonomy with the signing of the Treaty of 1646. In the period which follows, European settlement expanded considerably beyond the James-York Peninsula. The significance of the impact on native peoples in the Coastal Plain during this period is reflected in the number of additional groups who accepted tributary status to England with the signing of the Treaty of Middle Plantation in 1677 and the later version of the treaty concluded in 1680. As proposed in Rountree's (1976, 1990) work, the date 1705 might be identified as initiating the period in which circumstances led to the loss of reservation lands for many of these groups.

This temporal framework is also generally applicable to the Native American groups who inhabited the Coastal Plain north of the Rappahannock River, allowing their development to be compared to the Powhatan from whom they may have been politically autonomous (Turner 1973, 1985; Potter 1976). At least two culture areas need to be considered in this region: (1) the Potomac district within the Inner Coastal Plain, and (2) the Inner and Outer Coastal Plain inhabited by peoples who produced ceramics in the Townsend tradition. Fausz and Potter have suggested the experiences of groups in these two areas were quite different from those of the Powhatan. While the English waged war against the Powhatan in the early years of the Jamestown settlement, they sought to make allies of the Potomacs (Fausz 1985). Development of the Chesapeake fur trade in the late 1620s and the establishment of the Maryland colony in 1634 would also have had an impact on Potomac River groups not felt by groups in the Powhatan area (Fausz 1985; Potter 1989). Direct contact between European and Native American peoples in the lower Northern Neck after the expansion of colonial settlement into the area ca. 1650 was also less hostile than it had been in the Powhatan area (Potter 1976).

In his study of the ethnohistory of the Nottoway, Meherrin, and Weanoke Indians, Binford (1967) presented a workable temporal framework for the archaeological study of cultural change among native peoples who inhabited the

upper Chowan River drainage in the Inner Coastal Plain of Virginia. With additions for the Protohistoric period, this temporal scheme is comprised of five divisions (see Table 1). The rationale for the addition of the first two periods to Binford's scheme is the same as discussed above. Native populations within the upper Chowan drainage would have been less directly affected than the Powhatan by the Spanish Jesuit mission, which was probably located on the York River, or by later retaliatory violence by the Spanish focused on the James (Lewis and Loomie 1953). These groups may have been among those who visited with the Roanoke expedition that wintered with the Chesapeake Indians in coastal southeastern Virginia in 1565/66 (Binford 1967:121-124; Lane 1982:25; Quinn 1985:108).

The initial period of sustained European contact is extended to 1650 for the upper Chowan drainage. This date marks the beginning of a period of transition following the Edward Bland expedition. During this period the nature and frequency of contact between Native Americans and Europeans in the region changed significantly as the Virginia colony developed the overland trade to the south and southwest. Binford (1967) has characterized the period 1650-1677 as one of peaceful change within the Nottoway and Meherrin populations as they secured a place in the fur trade. After these tribes accepted tributary status following Bacon's Rebellion, they entered a period of increased stress related to the gradual loss of their role in the fur trade, the expansion of English settlement south of the Blackwater River, and increased hostilities from other tribes, such as the Tuscarora and Seneca. For reasons similar to Rountree's terminal date of 1705, Binford ends the fifth period at 1723, by which date the Nottoway and Meherrin were enclosed within the English settlement area and had entered into a period characterized by increasing land loss and acculturation.

The Piedmont

The early contact experiences of native groups in the central and northern Piedmont are probably best addressed through a temporal scheme which recognizes the same significant themes and events discussed below in reference to the southern Piedmont. The historical context just reviewed for the Coastal Plain province is applicable to the central and northern Piedmont after ca. 1630.

Research conducted in relation to UNC's Siouan Project has generated a number of temporal frameworks useful for understanding the experiences of native peoples in the sourthern Piedmont of Virginia. Two of these schemes are discussed here.

In assessing the potential effects of direct contact in terms of trait-unit versus site-unit intrusions, Wilson (1983) has proposed a temporal framework for the southern Piedmont that recognizes separate periods in the 16th century associated with direct contact following the Spanish expeditions of De Soto (1540) and Juan Pardo (1566-1568). Hudson et al. (1985) propose that in both incursions the Spanish traveled as far north as the upper Catawba Valley near Charlotte, North Carolina, and the French Broad River near Dandridge, Tennessee. While De Soto's expedition represents only a trait-unit intrusion, Juan Pardo's expedition, which established five manned forts or missions, was the first site-unit intrusion into the interior Southeast.

The chronology employed more recently by UNC for the Siouan Project is less detailed than Wilson's. It recognizes four major subdivisions within the period 1526-1740. The latter three subdivisions are used here, unaltered, but a period covering the time between the Columbus and DeSoto expeditions (1492-1540) has been added (see Table 1) (Dickens, Ward, and Davis 1987:6; Merrell 1987). Despite the Spanish incursions, the second period (1540-1625) used here is characterized largely by indirect contact. During the third period (1625-1675) intercultural contact between Indians and Europeans increased as the overland fur trade became established. A fourth era of expanded direct contact was ushered in by Bacon's Rebellion, after which the Occaneechi lost control as middlemen in the fur trade and English traders from Virginia and South Carolina ventured further into the interior. This period ends in 1710 with the beginnings of the Tuscarora and Yamassee wars as the Siouan peoples of the Piedmont moved east or south to get closer to the Virginia and South Carolina fur trade and to seek protection from raids from other Indians. The Saponi, Occaneechi, Tutelo, and Monocan lived as tributaries from 1714-1718 at Fort Christanna, but continual attacks by foreign Indians and the pressures from European settlers eager for their land soon led to their dispersal.

The Ridge and Valley and Appalachian Provinces

Because European settlement did not expand into the Ridge and Valley and Appalachian provinces of Virginia until the mid-18th century, there is little ethnohistoric information available on this region during the 16th and 17th centuries. The preliminary temporal framework proposed for this area draws on knowledge of the development and expansion of European settlement and trade elsewhere in the East and a presumption that some impact from these activities would have reached these interior areas via Native American networks of trade and exchange. Four periods are proposed for these regions (see Table 1).

During the initial period (1492-1540) possible effects on Native American societies from indirect contact with Europeans are expected to have been light. The second period (1540-1630) covers both the times of the De Soto and Juan Pardo expeditions, as well as a span of 60 years following the latter. During this period European settlement, trade, and missionary activities increased along the east coast of North America from Florida to the St. Lawrence River. The beginning date for the third period is suggested by Smith's (1987:58) analysis of European trade items in the interior southeast, which indicates an influx of goods from the Northeast starting around this time. European trade enterprises based on the Gulf Coast of Florida and in Georgia, the Chesapeake, and the far Northeast all expanded greatly during the early part of this period (Fausz 1985:250-252; Eccles 1988; Waselkov 1989:117-118). We know from the historic record that by the beginning of the fourth quarter of the 17th century, rivalry for this trade was generating hostilities between Native American groups all along the frontier of colonial settlement in Virginia. Thus, native peoples of the Ridge and Valley and Appalachian provinces were likely subject to attacks from more powerful Indian groups to the north and south during this period. When European settlement finally expanded into the region in the mid-18th century, the colonial settlers found evidence that the formerly resident native population had long since disappeared. It is unknown whether these peoples had been exterminated by the other native peoples who now used the region, were incorporated into groups such as the Iroquois Nations, removed to the west in flight, or migrated to the north or south to participate more closely in the trade.

ESTABLISHING SITE CHRONOLOGY AND CULTURAL AFFILIATION

Formulating a spatial-temporal framework for examining the cultural development of Native American societies in the context of European contact is a relatively simple process. Success in using this structure, however, depends on the ability of archaeologists to reliably date sites. Accurate identification of the cultural affiliation of settlements can also present problems in examining cultural change and continuity through time. The following section reviews our understanding of temporally diagnostic artifact types for the Protohistoric and Contact periods in Virginia and discusses some of the special difficulties archaeologists face in identifying Native American sites from these time periods.

Ceramics as Temporal and Cultural Indicators

The identification of Protohistoric Native American sites — those dating from the period of indirect contact with Europeans in a given region — poses particular problems for the archaeologist. Our ability to recognize these settlements usually requires an understanding of small-scale changes in Native American material culture through time, as usually few, if any, European artifacts are associated. Ceramics remain the only element of Native American material culture for which archaeologists have achieved any great success in this area, leading Feest to remark:

> It is only a slight overstatement to claim that by using ethnohistorical sources alone we would hardly know that southeastern Algonkians had produced pottery at all, while from archaeology we would hardly know that they had produced anything else (Feest 1987:91).

For the Coastal Plain of Virginia, developments in ceramic style and technology associated with the Protohistoric and early Contact periods are slowly beginning to be defined. By ca. A.D. 1300, three major ceramic traditions are found in the Coastal Plain. The most widespread of these, the shell-tempered Townsend series (Blaker 1963:14-22), is distributed generally from the southern shore of the James River north to the Potomac River and into the coastal regions of Maryland and Delaware. The Inner Coastal Plain of the Potomac is characterized at this time by a sand or grit-tempered tradition called Potomac Creek (Stephenson and Ferguson 1963:113-120; Schmitt 1965:10-11). Ceramics common to the Inner Coastal Plain south of the James River are of a third distinct type, the sand or grit-tempered Cashie series (Phelps 1983:43). Within each series, certain developments in surface treatment are associated with the Protohistoric and early Contact periods.

The predominant surface treatment represented in Late Woodland period Townsend series ceramics, beginning ca. A.D. 900 in Virginia, is fabric marking. Within a restricted area of this ware's distribution, simple stamped surfaces are also common. This surface treatment is found most commonly in the coastal regions of southeastern Virginia and northeastern North Carolina, but current research indicates that it also frequently occurs along both shores of the James as far upriver as the falls (Egloff and Potter 1982; Hodges 1993; McLearen and Binns 1992; Mouer et al. 1992).

Shell-tempered, simple-stamped ware, referred to either as Roanoke ware (Blaker 1952) or subsumed under the Colington series of North Carolina (Phelps 1983), has long been considered diagnostic of the Protohistoric or Contact periods because it was first identified in the fill from a ditch surrounding Fort Raleigh (Harrington 1948; Green 1987:133-134). Recently, Paul Gardner (1990:42-44, 49-50) has suggested a "sizable" proportion of Roanoke ware in an assemblage may be diagnostic of the post-contact period. This interpretation is not supported, however, by the three radiocarbon dates obtained thus far on Roanoke ware in Virginia. All three derive from the Great Neck site (44VB7) in Virginia Beach, where a date of A.D. 1515+/-70 was obtained by Painter (1981) from a pit feature and where two contexts excavated by the VDHR have yielded radiocarbon dates of 620+/-80 years B.P. (A.D. 1330) (Beta-12117, not adjusted) and 440+/-50 years B.P. (A.D. 1510) (Beta-38915, adjusted for C-13). The two VDHR dates are associated with ceramic assemblages comprised of 46% and 89% Roanoke ceramics by sherd count respectively (Hodges 1990b). These findings may indicate that the use of simple stamping increased gradually through time, but the ware apparently arose somewhat prior to A.D. 1500 and became the predominant type in some areas well before the 17th century.

North of the James River, some data indicate that production of plain-surfaced shell-tempered vessels, developing within the Townsend tradition, increased during the Protohistoric period. Potter (1982:123, 138, 376-379) and Waselkov (1982:294-296) were the first to recognize this phenomenon in their work in Northumberland and Westmoreland counties on the Northern Neck with their definition of Yeocomico ware, radiocarbon dated to A.D. 1510-1690. Although the relative frequency of plain versus fabric-marked ware through time has yet to be adequately charted, plain-surfaced wares have been recovered in other late contexts dated through radiocarbon analysis. The author has examined the Native American ceramics recovered by MacCord (1965) from Features 2 and 3 at the De Shazo site. Both features contain predominantly shell-tempered sherds with fabric-marked or smoothed-over-fabric surfaces in association with European artifacts. Feature 3 was radiocarbon dated to A.D. 1590+/-120. Recently, the Archaeological Research Center at the College of William and Mary has obtained a radiocarbon date of A.D. 1540+/-60 in association with plain-surfaced, shell-tempered ware at site 44KW73 (Jones, McCartney, and McFaden 1990:77).

It has been suggested that the production of plain-surfaced vessels also increased through time within the Potomac Creek series (Potter 1982:134, 138), in which cord-marked surfaces predominate. Excavations by Manson in 1957 and MacCord in 1983 at the Potomac Creek site appear to confirm this

interpretation. In collections from two undisturbed midden deposits, plain-surfaced wares increased from 8.7% to 42.9% and from 5.6% to 24.9% from lower to upper levels, while cord-marked sherds decreased from 91.3% to 57.1% and from 91.1% to 73.2% (Manson and MacCord 1985:Tables 2 and 8).

The increase in plain-surfaced pottery within the Townsend and Potomac Creek ceramic traditions during the 16th century is likely related to the later appearance of two types of colonoware (for usage of the term see Ferguson 1980:24) ceramics beginning around the mid-17th century, namely "Colono-Indian" ware and Camden ware. These ceramics are low-fired, hand-built earthenwares with plain or burnished surfaces which incorporate some features of European vessel form with technological attributes of paste seen in earlier Native American wares. The shell-tempered "Colono-Indian ware" defined by Noël Hume (1962) is common in colonial contexts dating after ca. 1675 and, as originally suggested by Noël Hume, is probably linked to the mid-to-late 19th and early 20th-century ceramic tradition documented among the Pamunkey Indians at the Pamunkey Indian Reservation in King William County (Pollard 1894:17-19; Holmes 1903:152, Plate CXXXVI; Speck 1928:394-432; Stern 1951). This type of colonoware was manufactured in a variety of European-inspired forms, including chamber pots, plates, cups, porringers, and pipkins.

Camden ware, defined by MacCord (1969), displays a technological affinity to Potomac Creek ware and shows relatively little influence from European traditions of vessel form, except for flattened bases and, very rarely, handles. Camden ware has been well-documented only at site 44CE3 at Camden Farm on the Rappahannock River, where it is associated with European artifacts dated ca. 1680-1710. Site 44CE3 is one of several sites, which appear to have comprised a Native American village within the boundaries of the late 17th-century Nanzattico reservation, yielding similar ceramics at Camden Farm (Hodges and McCartney 1985; Hodges 1986). Some ceramics at the Camden site display the cord-marked surfaces seen in Potomac Creek ware, and the names of some of the Native American groups living with the Nanzatticos at this time (such as the Portobago and the Mattehatique) suggest they may have relocated to the Portobago Bay area from pre-contact territories in the Inner Coastal Plain of the Potomac River in Virginia and Maryland.

In some instances, the geographic distribution of Potomac Creek ware may be temporally diagnostic. Potter (1982:134) has pointed out that during the 16th century Potomac Creek pottery was used along the southern shore of the Potomac River downstream only as far as the vicinity of Upper Machodoc Creek in King George County, not to the mouth of the river (MacCord 1969:18). Clark (1980:Figure 1) has indicated that Potomac Creek ware is also found in

quantity below the falls of the Rappahannock River to the vicinity of Cat Point Creek in Richmond County, but his article may be misleading. He implies that these occurrences represent the pre-contact distribution of Potomac Creek ware, yet at many of the sites identified (44CE3, 44CE12-15, 44CE20, and 44EX3-5), Potomac Creek or the related Camden ware are found in association with late 17th-century European artifacts (MacCord 1969; VDHR Archives). Most available evidence suggests that on the Rappahannock River below the falls settlements dating from before the mid-17th century are represented by the Townsend series (MacCord 1965; Potter 1980:4-5; Hodges, McCartney, and Straube 1985:25). Settlements yielding a high proportion of Potomac Creek or Camden ware may be associated with Indian groups displaced during the mid-to-late 17th century from the Inner Coastal Plain of the Potomac River.

Simple stamped surface treatment has been suggested to be diagnostic of the Protohistoric and Contact periods in the Inner Coastal Plain and Outer Piedmont of southern Virginia, similar to this attribute's appearance within the Townsend (or Colington) tradition. Phelps (1983:43-44) has identified a sand or grit-tempered ware with fabric, simple stamped, and plain surfaces associated with the Cashie phase dated ca. A.D. 800-1715 in the Inner Coastal Plain of North Carolina. Egloff and Potter (1982:109) have noted the similarity between Cashie and the Branchville series, which was defined by Binford (1964) in collections from along the Nottoway and Meherrin rivers in the Inner Coastal Plain of Virginia. While no clear data on temporal variation in surface treatment within the two series currently exists, only the simple stamped variant has been found in high frequencies at two sites on the southern bank of the James River in Prince George County. These sites, Flowerdew Hundred and Jordan's Point, are both believed to date at least as late as A.D. 1500 (Mouer 1985; Mouer et al. 1992). Gaston Simple Stamped ceramics, a type defined by Coe and likely comparable to the simple stamped types within the Cashie and Branchville series, has been radiocarbon dated to A.D. 1741+/-200 at the Gaston site (31HX7), located on the Roanoke River just south of the Virginia border (Coe 1964:101, 105-107).

Davis's (1987) study of ceramics from the Piedmont of North Carolina and southern Virginia provides additional evidence for a Protohistoric and Contact period date for simple stamped surfaces within the Cashie and Branchville series. By performing a cluster analysis of ceramic assemblages by surface treatment from a sample of sites within the middle Roanoke, upper Dan, upper Neuse, and Haw river drainages, Davis identified three assemblage groups associated with the Late Woodland through Contact periods. One group, which he assigns to the Late Woodland, or prior to A.D. 1525, is characterized by high

frequencies of sand/grit-tempered ware with net-impressed surfaces and significant amounts of plain-surfaced sherds. These wares can be equated with the Dan River series (Coe and Lewis 1952) which is distributed widely throughout the study region, displaying only minor variation in attributes (Gardner 1980).

The other two assemblage groups exhibit distinct geographic distributions. Assemblages dating from after ca. A.D. 1520 in the Haw and upper Dan drainages in North Carolina are characterized by sand/grit-tempered wares with high frequencies of plain surfaces and significant frequencies of net-marked and brushed surfaces. This development out of the Dan River ceramic series was one attribute among others recognized by Wilson (1983:488-490, 616-618) in the ceramic assemblages from Upper Saratown (31SK1 and 31SK1a), dated ca. 1650-1690, which led him to define the Oldtown series.

The third group is comprised of assemblages in the Neuse River drainage postdating A.D. 1525. It is characterized by sand/grit-tempered wares with simple stamped, check stamped, and plain surfaces. The Gaston ceramic assemblage from the Gaston site also clusters with this group, although Davis (1987) assigns this assemblage to the Late Woodland period. Contextual data from the Wall (31OR11, dated ca. A.D. 1545) and Fredricks (31OR231, dated ca. 1690-1710) sites suggest that check stamping increased through time relative to simple stamping. Coe (1964:105) reported a small amount of check-stamped Gaston ware at the Gaston site, and one check-stamped sherd has been recovered in excavations within the English fort at Fort Christanna (44BK3) occupied 1714-1718 (Beaudry 1979:56).

While Davis's research on the Piedmont seems to support a 16th-century placement for simple stamped Cashie or Branchville ceramics in the Inner Coastal Plain of southeastern Virginia, the ceramic traditions in the two regions followed along different lines during the 17th century. Binford's (1965) survey along the Nottoway and Meherrin rivers in the Inner Coastal Plain of Virginia documented the occurrence of a colonoware in this area beginning ca. 1660 and continuing to at least 1760. These Courtland series ceramics are plain-surfaced or burnished. Their paste shows an affinity to the Branchville or Cashie series and they display a degree of influence from European traditions of vessel form falling somewhere between that seen in the "Colono-Indian" and Camden colonowares discussed earlier.

As Binford (1965) suggested, Courtland ware was likely manufactured by the Nottoway and Meherrin Indians, both Iroquoian-speakers. Wilson (1983:369, 483) has proposed that the occupants of the Wall site may also have been Iroquoian-speakers, based on the high frequency of simple stamping in the

assemblage and the more frequent association of this surface treatment with the Inner Coastal Plain. Interestingly, biometric traits associated with skeletal remains recovered from the Fredricks site, a likely candidate for the Occaneechi Town visited by Lawson in 1701, also show more affinity to Algonquian and Iroquoian populations of the Coastal Plain than to Piedmont Siouan groups (Wilson 1987:138-139). The divergence between the ceramic traditions of Iroquoian groups in the Inner Coastal Plain of Virginia and possible Iroquoian groups along the upper Neuse River during the mid-17th century may be related to more active participation by the latter peoples in the fur trade. The ceramics from the upper Neuse River incorporate "southern" traits associated with the lower Catawba and lower Yadkin rivers (Wilson 1983:484), perhaps indicating greater interactions with peoples in those regions. These types of traits also increase in frequency within the upper Dan River drainage at this time (Wilson 1983:491-492).

The historic record indicates that the relocation of native groups, as well as their coalescence into multi-ethnic societies or communities, were common occurrences after European contact. These phenomena present special problems in defining temporally sensitive ceramic typologies for the Protohistoric and Contact periods. For example, Ward's (1987) analysis of mortuary features at the Fredricks site suggests that at least two distinct ethnic groups inhabited the village settlement there during the late 17th century. This possibility complicates interpretation of the differences between the ceramic assemblages from Fredricks and the nearby Wall site, since these may involve change within a single cultural tradition through time, as well as cultural intermingling or amalgamation.

For the portion of the Virginia Piedmont drained by the James River, Mouer (1983:32-33) has defined a Black Branch phase he believes corresponds to the Protohistoric and Contact Native American occupation. He describes the predominant ceramics associated with this phase as similar to Potomac Creek, but including significant amounts of fabric-impressed as well as cord-marked surfaces. Simple stamped and brushed ceramics are present, but as a minority in assemblages in the Outer Piedmont. Little data are available on diagnostic types associated with the Protohistoric or Contact periods along the Rappahannock and Rapidan rivers in the Piedmont, but ceramics illustrated by Bushnell (1933) suggest Potomac Creek ware and a fabric-impressed ware similar to that described by Mouer are present.

For the Shenandoah Valley, Gardner (1986:87-90) has noted that an indigenous population represented by Page ceramics (limestone-tempered, cord-marked) is replaced ca. A.D. 1400 by one which produced the shell-tempered Keyser series. While Keyser ceramics were presumably made well into the

Contact period, temporal variation within the ceramic series has not yet been defined. The intrusion of populations from the northwest does not appear to have resulted in a complete replacement of indigenous populations within the upper James River drainage, since research conducted by James Madison University indicates that both Page and Keyser ceramics are associated with the Protohistoric period in this region. The ceramic assemblage from the Perkins Point site (44BA3), radiocarbon dated to ca. A.D. 1510-1635, is comprised of approximately 75% limestone-tempered and 25% shell-tempered ceramics (Geier 1984:168).

Egloff (1987:11-13) has defined a temporally sensitive typology for ceramics within the Tennessee River drainage in southwestern Virginia. The predominant ceramic associated with the indigenous populations in this area during the Late Woodland and Protohistoric periods is Radford ware, a limestone-tempered ceramic with predominantly cord or net-marked surfaces. While Radford appears to have been produced from A.D. 1000-1700, its occurrence with Dallas ware, associated with Mississippian cultures to the southwest, or with an indigenous Mussel Shell ware (predominantly plain surfaces), provides a terminus post quem of A.D. 1300 for sites in the region. Egloff also suggests that the frequency of plain, in addition to net-impressed, surfaces in the Wythe variant of Dan River ware (Gardner 1980; Holland 1970:69-73) found along the Clinch River indicates this ceramic likely dates after A.D. 1500.

Trade Goods and Other European Artifacts

The archaeologist is fortunate when European artifacts are associated with Protohistoric or Historic Native American components, since these often enable the dating of sites with some accuracy. Unfortunately, often only few, if any, European items are found at Native American sites dating from the Protohistoric or early Contact periods. Moreover, some of the most common artifacts obtained from Europeans at this time were produced over long periods while undergoing little diagnostic change in style or technology, or were manufactured in materials, such as copper or shell, which were also available from North American sources.

Copper artifacts present a particularly difficult interpretive problem for archaeologists in Virginia. Copper is known to have been traded among native populations of Eastern North America as early as the Late Archaic period. The ethnohistoric record for 16th and 17th-century Virginia and North Carolina indicates this metal was highly valued among coastal Algonquian populations, and

copper items were eagerly sought after by the werowances in trade with Europeans (Turner 1985:201-203; Potter 1989). Most archaeologists have assumed that the copper obtained prior to the European trade was derived from the Great Lakes region. Hantman (1990:685) has recently suggested that copper sources in the central Piedmont of Virginia also may have been used, although the question of whether these deposits could have been exploited using Native American technologies has yet to be resolved. Copper is also found locally in the outer Piedmont along the Roanoke River (Rickard 1934).

Because of the variety of native and foreign sources from which Native American peoples in Virginia could have obtained copper in the early post-contact period, it is interesting that Smith (1987), in his study of depopulation in the interior Southeast, considered all copper or brass artifacts associated with contexts dating from A.D. 1525-1670 to have originated from the European trade. He refers to all European copper or brass artifacts as "brass" for "ease of discussion in the face of the lack of detailed analysis" (Smith 1987:36-41). Without such analysis, however, it would appear extremely difficult to reliably attribute to either European or native origins archaeologically-recovered copper or brass ornaments produced in such nonculturally-specific forms as tubular beads, tinkling cones, triangular pendants, or circular gorgets.

Elemental analysis has been used to identify the origin of copper artifacts from a number of suspected contact sites in Virginia, including Crab Orchard (MacCord and Buchanan 1980:118; VDHR Archives), Richlands Hospital (Egloff and Turner 1988:19), Great Neck (Hodges 1990b), and Graham-White (Klatka 1991). Review of the first three efforts, however, suggests that the conclusions cannot be considered reliable. Lacking is appropriate background research involving analysis of statistically valid samples of copper of known origin, which is needed to establish rigorous qualitative and quantitative criteria for successfully discriminating between sources (cf. Bastian 1961). Elemental analysis should also be supplemented by metallographic examination to determine how copper artifacts were made. Some European artifacts were manufactured in copper of very high purity, and Native Americans reworked European materials using indigenous technologies (Bradley and Childs 1991).

In addition to physical and chemical analyses, the source of some copper artifacts might be established through careful review of the historic record on trade and by analysis of the temporal and spatial distribution of the archaeological contexts from which such items have been recovered. On the basis of such research, for example, Waselkov (1989:121-127) has proposed that sheet brass disc gorgets with a large central hole, such as one recovered at the Trigg site, were made as early as A.D. 1580 in Florida. These may have been made in the

Indian missions for the specific purpose of trade to Native Americans who resided in the interior.

Like copper, shell is another material which was used by native peoples before European contact and was later used in the trade between Europeans and Indians. The Dutch and the English both manufactured shell beads for the trade themselves and purchased them from other Native Americans (Herman 1956; Miller, Pogue, and Smolek 1983:128). Some differences in the form and manufacture of shell ornaments appear to be temporally or culturally diagnostic. In a study of shell beads from the Wall and Fredricks sites in the Piedmont of North Carolina, Hammett (1987) identified three types of beads present only at the latter site (dated ca. 1680-1710), which she believes were introduced through the fur trade: runtees, barrel/cylinders, and wampum.

Runtees are oval to circular shell beads with flat faces and are drilled through the narrow edges (Wright 1968:227). Engraved runtees are commonly found on Native American sites dating from A.D. 1670-1760 in the Upper Great Lakes region of the United States, where they are believed to have been manufactured by European colonists (Quimby 1966:77, 133; Buckmaster and Canouts 1971:37-38). Twenty-one runtees were found in association with two burials at the Fredricks site, and Hammett (1987) notes that these are the only such beads found thus far on any site in the North Carolina Piedmont. This author is aware of only three contexts in Virginia where runtees have been recovered, two of which are post-contact. At the John Green site, runtees were associated as funerary items with at least three burials, one of which also contained such items as a copper kettle, a pair of scissors, and Euro-American cloth (Painter 1963; MacCord 1970:115). A pit feature at the Bush site (44KW29) on the Pamunkey Indian Reservation, which was filled during the early 19th century, contained one runtee as well as an abundance of colonoware. Two more runtees were recovered from the plowzone directly above the feature. A drawing of what appears to be a rectangular runtee also appears in Manley's (1963:Figure 2i) report on the Lewis Creek Mound site (44AU20), which is radiocarbon dated to A.D. 1110-1370 (MacCord 1986:10).

Hammett's research suggests that both runtees and barrel/cylinders replaced the columnella segments used by Piedmont populations before the late 17th century, and that wampum replaced traditional use of the marginella shell bead. Segment beads are quite variable in size and shape, while barrel/cylinder beads are characteristically longer than wide and more symmetrical than segments (Hammett 1987:172, 175). Within its two color categories, white and purple, wampum is quite regular in length and width. Most wampum was produced in

short, straight tubes, although Hammett has identified an oval variant produced by grinding the corners (Hammett 1987:177).

It is unknown whether the distinctions noted by Hammett are applicable to Virginia contexts, as no comprehensive, comparative study has yet been conducted on the forms, sizes, shellfish species, and manufacturing techniques associated with the numerous shell beads recovered from dated pre-contact and post-contact sites in the state. Such research could yield important information on the complex networks of trade and exchange which existed among Native American and European peoples, as well as on persistence or change within Native American ideological systems following European contact. From their review of archaeological and documentary evidence, for example, Miller, Pogue, and Smolek (1983:149) concluded that shell beads were more important than glass beads within the 17th-century Chesapeake Indian trade, suggesting that "shell beads possessed a cultural value to the native populations that could not be transferred to the European variety." Apart from the study by Miller, Pogue, and Smolek (1983), no comprehensive research has been conducted on glass beads associated with Native American contexts in Virginia, although these artifacts are in most cases well described in individual site reports.

There are many types of temporally diagnostic European artifacts commonly found on Native American sites that will not be discussed here as they also commonly comprise European colonial assemblages and are covered in an extensive archaeological literature; however, a brief mention should be made about such items in relation to their presence in what might be termed "acculturated" assemblages. Because so many Native American groups in Virginia still practiced substantially traditional lifeways into the 18th century, it is easy for archaeologists to overlook those other Native Americans who, while they maintained an ethnic identity, had become more fully acculturated to European colonial lifeways, some living among the colonists as servants and slaves. Sites occupied by these individuals present a particular problem for the archaeologist, for they may be indistinguishable in terms of material culture from those occupied by European Americans and African Americans. This problem is illustrated well by the different interpretations offered for the Owings site, which yielded an abundance of colonoware in association with a range of Euro-American items, dated ca. 1675-1750. Dalton (1974) concluded that Owings was occupied by an African-American slave who may have had a wife of Native American ancestry. Potter (1976:68-69, 1977) later argued that the inhabitants could have been an acculturated Native American family, probably of Wicocomoco descent, citing historic documentation on Indian land ownership in Northumberland County and the 1719 probate inventory for the estate of the

Wicocomoco werowance, which lists a variety of European goods, as well as three "Indian milkpanns." Numerous sites similar to Owings likely exist in other areas where tributary Indian groups were located in the late 17th century. Clearly, identification of the age and cultural affiliation of 17th-century Native-American, European, and African-American sites in Virginia must be grounded in careful consideration of both typological and ethnohistorical data as well as recognition of the limitations of archaeological data.

THE CONSEQUENCES OF CONTACT

The responses of native societies to European contact in Virginia were varied and influenced by a number of factors specific to the temporal, spatial, and cultural contexts of contact. We are nowhere near the point in Virginia where we can either describe these differences in great detail or explain with confidence how or why they resulted. Nevertheless, review of the present body of archaeological and ethnohistorical scholarship on this subject finds that two factors — depopulation and trade relations — are often credited as primary determinants leading toward decline, persistence, or change within traditional cultural systems.

Depopulation

That depopulation occurred among the Native American peoples in Virginia as a consequence of European contact is a well substantiated fact, but the type of ethnohistorical information available on this subject makes it difficult to quantify the extent and rate of population decline. The best information exists for groups within the Coastal Plain. Here, the total Algonquian population ca. 1607 has been estimated at a minimum of roughly 13-14,000, extending perhaps as high as 22,000 (Feest 1973; Turner 1973, 1982). Comparison of population figures provided in John Smith's (Arber 1910:51-52, 347-348) early 17th-century and Robert Beverley's (Wright 1968:232-233) early 18th-century accounts gives some feel for the extent of depopulation in the region after a century of intensive, sustained Native American-European interaction. Smith enumerated 27 groups, Beverley named 12. Among these, Smith counted the Pamunkey, Chickahominy, and Wococomoco, respectively, at 300, 200-250, and 130 "able" or "fighting" men, while Beverley supplied figures of 40, 16, and 3. Three major, interrelated causes of depopulation can be identified from information in the historic record: (1) death from Old World diseases, which spread epidemically among native populations lacking immunity to these pathogens; (2) death from physical injury inflicted during warfare between Europeans and Native Americans and among

native peoples; and (3) death related to malnutrition and starvation resulting from the disruption of traditional subsistence systems through population decline and land loss, or through military actions such as crop destruction or the routing of a population.

The role of epidemic-related depopulation in forming the cultural environment encountered by the English in Virginia in 1607 has been the subject of some difference of opinion among ethnohistorians. Dobyns (1983:Tables 1-3, 6, 9) has identified a number of epidemics that he believes could have affected the native peoples of Virginia prior to 1607. Others suggest that not all such epidemics were pandemics, however, and instead were restricted by buffer zones between populations (Snow and Lanphear 1988).

There is a strong probability that Native Americans in Virginia were touched by disease introduced among native populations in coastal North Carolina, where epidemic death from contact with the Roanoke colonists during the mid-1580s is well documented (Hariot 1946:270-273). Rountree (1990:10, 25) has hypothesized that social disruption due to mass death from disease may have been a factor facilitating the consolidation of Powhatan's political authority in coastal Virginia during the late 16th century. Turner (1985:209-211) has argued, however, that the development of a complex chiefdom among the Powhatan Indians was the result of solely indigenous processes. Further, he has concluded that the effects on Powhatan society from the spread of European diseases through the first half of the 17th century were not substantial (Turner 1985:212).

Despite the interest ethnohistorians have expressed in the subject, very little archaeological research has been directed toward determining if depopulation due to death from disease, warfare, and starvation were significant aspects of the Native American experience during the Protohistoric and Contact periods in Virginia. The lack of directed research in the Coastal Plain province is especially noteworthy, as mortuary remains, particularly ossuaries, have been among the most frequently excavated features in the region due to their high archaeological visibility. Our sample of these features is not large, and the research value of some has been compromised by damage from construction, plowing, and erosion; yet, the curated sample offers some opportunity to examine demographic trends through time, as it includes ossuary populations ranging from the early Late Woodland to the Contact period (Boyd and Boyd 1992; Turner 1992). Ubelaker's (1974) reconstruction of demographic profiles indicated by two ossuary samples from the protohistoric Juhle site in Charles County, Maryland, clearly illustrated the potential of such studies.

Wilson (1987) has conducted promising bioarchaeological research on depopulation and other effects of European contact for the Piedmont region of North Carolina and southern Virginia. Comparing mortuary populations from Shannon (44MY8), a late prehistoric or possibly protohistoric site located on the North Fork of the Roanoke River near Blacksburg, Virginia, and Upper Saratown (31SK1a), dated ca. 1680 and located on the upper Dan River in North Carolina, Wilson found the Upper Saratown sample exhibited a higher crude mortality rate and lower life expectancies at all ages. She concluded, however, that the Upper Saratown pattern was due to stresses not specifically correlated with European diseases, because mortality of individuals 10-20 years old declined. Mortality among males 20-40 years old was significantly higher in the Upper Saratown population, perhaps indicating higher stress during the historic period related to the fur trade and inter-tribal warfare. Homes H. Wilson (1985, pers. comm.) has also suggested that the Trigg site (44MY3), dated ca. 1600-1635 (Buchanan 1984:415), may exhibit a demographic profile affected by epidemic death due to disease. Trigg is characterized by a higher crude mortality rate (63.49) than either Shannon (38.76) or Upper Saratown (51.02). Mortality among individuals 0-19 years old is also higher at Trigg (63.0%) than among individuals 0-20 years of age at either Shannon (42.0%) or Upper Saratown (51.4%).

Trade Relations

Writing in 1971, Craven (1971:66-67) noted that economic considerations had been given less attention than they deserved in explaining the decline or survival of Native American societies in Virginia and elsewhere after European contact. Interest in this subject appears to be increasing among ethnohistorians (cf. Fausz 1985; Merrell 1989b), and archaeologists also are increasingly referring to the ethnohistoric record on trade relations to explain the archaeological record, or to formulate models of cultural change which can be tested against the record. Most recent ethnohistoric and archaeological research has been concerned with the effect of the fur trade on Native American peoples.

Potter (1989), for example, has begun to examine how the Chesapeake trade of ca. 1630-1669 may have contributed to changes in socio-political structure among the Patawomeke Indians. He has studied the association of highly valued items, such as copper artifacts and European goods, in seven mortuary features dating from the 16th century through ca. 1650-1666, excavated since 1869 at Potomac Neck (44ST1 and 44ST2) in Stafford County. While differences among these features are not easily summarized, Potter proposes that

the traditional authority and power of Patawomeke werowances was maintained up to ca. 1630. He infers this based on the restricted association of numerous high status items with certain primary internments and the low frequencies of such items in ossuary burials. In the one feature in the available sample dating from after ca. 1630, the quantity of European artifacts per number of individuals interred is greater. Potter hypothesizes this difference reflects a decline in the authority of the werowances brought on by the Chesapeake fur trade, which allowed other individuals more opportunities to acquire wealth independent of traditional lines of authority.

While the fur trade was a powerful force for change among Native American societies, it is important to recognize that these changes were not necessarily of a type described by the term acculturation. Smith (1987) emphasized this important distinction in his examination of culture change among Native American societies in the interior Southeast of ca. 1525-1670. His research indicated that some native societies in this area underwent profound changes, including depopulation, population movements, and simplification of their political structure, following initial European contact; but they did not necessarily adopt European lifeways. Even as trade with Europeans increased and greater quantities of European goods were acquired, the evidence up to at least A.D. 1670 indicates these items were adopted merely as functionally equivalent replacements for native goods within largely traditional cultural systems. Ward (1987) has come to a similar conclusion regarding the contextual associations of European artifacts as funerary items within mortuary complexes during the late 17th century in the North Carolina Piedmont.

Archaeologists have also cited the fur trade as a factor which enabled, or even encouraged, Native American societies to maintain their traditional culture. For example, from their analysis of collections recovered from field survey and limited test excavations conducted at several sites believed associated with late 17th and 18th-century towns of the Nanticoke and Choptank Indians on the bay side of Maryland's Eastern Shore, Davidson, Hughes, and McNamara (1985) concluded that each group preserved much of its traditional culture late into the colonial period. They credit this situation partially to the trade system in the area, in which individual traders effectively established exclusive rights to trade with certain Native American communities by purchasing or patenting the land on which their towns were established. They suggest, "Trade of this sort probably resulted in considerably less disruption of traditional Indians lifeways than would have been the case if there had been genuinely free trade" (Davidson, Hughes, and McNamara 1985:49). In reference to the early 17th-century Chesapeake fur trade, Fausz (1985:252) has noted that trade "allowed — in fact,

demanded — that Indians remain Indians, pursuing the skills they knew best without fear of territorial dispossession."

The ethnohistoric record indicates that, apart from their involvement in the fur trade, Native Americans in Virginia also participated in the colonial economy through the exchange of craft items, including mats, baskets, wooden trays and containers, and ceramic vessels and smoking pipes (Mouer et al. n.d.). Binford (1967:164-167) has suggested that the manufacture of such items for trade may have increased at roughly the beginning of the fourth quarter of the 17th century, as certain tributary groups came to be bypassed in the fur trade and, thus, searched for an alternative medium of exchange for European goods.

Binford (1967:167) specifically associated this explanation with the production of colonowares, proposing that both the type of Indian craft manufactures and the styles in which they were produced were structured to meet the needs and tastes of the European colonists who purchased them. Recently, the attribution of colonowares in Virginia to Native American manufacture has been challenged by Deetz (1988), who contends that the wares were produced by African-American slaves. Three major points comprise his argument: (1) the amount of colonoware found on late 17th and 18th-century sites exceeds the production capabilities of the local Native American population, (2) the timing of the appearance of colonowares in high frequencies during the late 17th century corresponds with a dramatic increase in the number of African slaves imported into Virginia, and (3) this period also witnessed a change in master/slave relations in which slaves no longer lived with their masters and were forced to manufacture their own household wares. One limitation of Deetz's argument is that it fails to provide a model of African-American production and distribution which would account for what currently available data indicate about patterned variability in the spatial distribution of colonowares in Virginia (Hodges 1989, 1990a). As discussed earlier, three major types of Virginia colonoware — "Colono-Indian," Camden, and Courtland — have been formally described to date, and each is primarily distributed within an area associated during the late 17th and 18th century with Native American groups whose pre-contact ceramic traditions show some affinity to the ware in terms of paste composition.

The physical, spatial, and temporal dimensions of colonoware in the Coastal Plain of Virginia have been examined in a comprehensive fashion by Henry (1980) and Mouer et al. (n.d.). Both studies conclude that there is yet insufficient evidence to reject the interpretation that most colonoware in Virginia was made by native peoples, although a few examples of possibly African American-made wares exist. On the whole, however, more rigorous analysis of this artifact type is needed before reliable statements about its manufacture, use,

and meaning can be made. Further research is also needed to resolve similar questions about the locally-produced, often decorated, ceramic smoking pipes commonly found in both aboriginal and colonial 17th-century contexts in the Chesapeake. These artifacts have long been of interest to researchers who have attributed them to Native American or English manufacture, or both (Harrington 1951; Winfree 1969; Heite 1972; Mitchel 1976; Henry 1979). Emerson (1988) has recently proposed that "colono" pipes were largely made by African Americans, suggesting that the decorative motifs and techniques employed were derived from a generalized West African tradition. In reviewing Emerson's arguments, Mouer et al. (n.d.) have affirmed that there is considerable evidence to suggest that many pipes were, indeed, made by Native Americans.

CONCLUSION

For most regions of Virginia, ethnohistoric research has produced the best body of cultural and historical information to date that can be summarized in a narrative, or culture history of resident native populations following European contact. Archaeological research, for the most part, has generated only incomplete patches of data from a small sample of incoherent cultural and temporal contexts. Archaeology is a slow, labor intensive, and costly process. Unrestricted resources are scarce, and developers and the forces of nature constantly confront us with lists of projects which demand attention. Given the current economic and political climate, it might be unreasonable to expect that we can increase our opportunities for research in the near future, but we can perhaps make the products of our efforts more meaningful. To do this, we first must establish clear goals for our work. A considerable portion of this review has been devoted to discussing what these might be.

It has been suggested that archaeology in Virginia must be conducted in relation to research designs which attempt to integrate three goals: cultural description, delineation of culture process, and explanation of variation in the trajectories of Native American societies across the state in their responses to European contact. A rough spatial-temporal framework for the analysis of culture process and variation was presented. This framework essentially defines contexts which allow the effects of specific cultural, environmental, and historical variables to be isolated for study. Too often in the past, archaeology in Virginia has been conducted merely to generate or "save" data that the ethnohistoric record has been summoned to explain. One major aspect of the framework presented here is that it exhorts archaeologists to structure our research so that the ethnohistoric record is employed first and foremost as a source of hypotheses

and expectations. While the ethnohistoric record for native peoples in Virginia is incredibly rich, as archaeologists we cannot allow it to seduce us.

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APPENDIX:
NATIVE AMERICAN CONTACT SITES IN VIRGINIA

Sites included here have either yielded artifacts of obvious Euro-American manufacture in association with Native American artifacts in undisturbed 17th through mid-18th-century contexts, or produced radiocarbon dates from this period which are generally considered reliable. The reader is also referred to similar inventories prepared by MacCord (1989) and Turner (1990). See the series of articles addressing the Late Woodland period in Reinhart and Hodges (1992) for possible 16th-century sites which have not yielded European artifacts.

Coastal Plain Province

44CF14, Kiser. This multicomponent site was excavated by the ASV in 1964 and by the VSL and ASV in 1974. Numerous pit features, including a few burials, were excavated in the latter investigation. Few Euro-American artifacts — a fragment of case bottle glass, a brass clothing hook, and a handmade iron tack — were recovered from the fill of aboriginal features (Buchanan 1985).

44CE3, Camden. In excavations by the VSL in 1964-1965, of a roughly 40 x 30-ft. area, an abundance of colonoware and locally-made clay smoking pipes were recovered in plowzone contexts in association with a variety of Euro-American artifacts dating ca. A.D.1680-1710. The most notable of these was a silver medallion inscribed "Ye King of Machotick." In 1832, a similar medallion inscribed "Ye King of Patomeck" was found at an unrecorded location nearby. Survey of the surrounding field by the VDHR in 1983-1984 indicated an additional eight concentrations of colonoware ceramics believed to indicate the locations of individual houses which comprised a Native American settlement of internally-dispersed plan (MacCord 1969; Hodges and McCartney 1985; Hodges 1986).

44FX1471, Little Marsh Creek. Excavations at this small seasonal procurement camp, conducted by the Environmental and Heritage Resources Office of Fairfax County in 1988, recovered predominantly Potomac Creek Plain ceramics, triangular projectile points, and three Native American-made gunflints, one of European flint. Radiocarbon date: A.D. 1520+/-90 (Moore 1990).

44GV1, 44GV2, John Green or Triangle. Excavations by the ASV in 1968 uncovered several pit features, including six human burials and numerous postmolds. Two child burials were accompanied by funerary items: one with shell beads, the other with shell beads and Euro-American items such as glass beads, a copper kettle containing a copper spoon, glass beads, cloth, an iron knife with bone handle, scissors, and other items. Painter has reported that a "paucity of trade goods" were interred with an additional 35 human burials excavated by various collectors, although he adds gun parts and shot to the list of Euro-American manufactured funerary items (Painter 1963, 1964a, 1964b; Carter 1967; MacCord 1970).

44KG3, DeShazo. Excavations here by the ASV in 1964 uncovered three features. One, radiocarbon dated to A.D. 1590 $\pm$120, contained predominantly shell-tempered fabric-marked or smoothed-over ceramics associated with an English gunflint, an iron nail, a white ball clay pipe fragment, and a strip of rolled copper. Similar ceramics predominated in another feature which also contained an English gunflint, a fragment of glass, four fragments of white ball clay pipes, and 15 nails (MacCord 1965).

44NB1, Owings. Excavations here by the ASV in 1972 recovered an assemblage comprised of an abundance of predominantly shell-tempered colonoware and late 17th- through mid-18th- century Euro-American artifacts such as glass beads, metal spoons and forks, wine bottle glass, coarse earthenware, grey salt-glazed stoneware, white clay pipes, and nails. The ethnic affiliation of this site has been a subject of debate (Dalton 1974; Potter 1977).

44NB147, Blue Fish Beach. Test excavations were conducted at this shell midden in 1976 by Stephen R. Potter. A few Euro-American artifacts, including two stems of white clay pipes, an iron knife blade, and one wasted core and one flake of English flint, were recovered from near the top of an undisturbed midden deposit containing Yeocomico ceramics. It is possible these artifacts may be scattered debris associated with an English domestic complex dated ca. 1650-1740 located about 1500 feet away at the Corbins Rest site (44NB180) (Hodges 1990). Radiocarbon dates: A.D. 1605+/-70 and 1645+/-70 (Potter 1982).

44PG40, Maycock. One of several Native American burials documented at this site was accompanied by a necklace of shell beads strung on an iron wire (Turner 1990).

44PG51, Hatch. Excavations since 1975 by the Virginia Foundation for Archaeological Research have revealed numerous Native American postmolds, pit features, human burials, and dog burials at this site. Native American artifacts have been recovered in association with hand-wrought nails and European flint in a few of the pit features. Postholes associated with at least three colonial structures have also been found. Occupation by native peoples after the colonial occupation may be indicated by a Native American burial which intrudes on one of two parallel trench features at the site which possibly represent a colonial double palisade wall (Gregory 1980; Turner and Opperman 1989).

44RD3, Mt. Airy. In 1947, after being disturbed by gravel pit operations, this cemetery was salvage excavated by the ASV. Remains of 30 or more individuals associated with as many as 3 ossuaries were recovered. Funerary items included: red ocher; "bark" wrapping; "twenty-odd thousand" shell disc, tubular, and spherical beads; 3 shell gorgets; 3 locally-made clay pipes with roulette decoration; over 15,400 glass beads; approximately 30 copper hawk bells; at least 10 copper buttons; 8 copper and 6 iron bracelets; about 18 copper rings; a copper pin ornament; spiralled copper wire; an iron case containing two glass mirrors; and other objects (McCary 1950).

44ST1, Indian Point. Potter's (1984) analysis indicates that this site was the location of excavations in 1869 by avocational archaeologists who uncovered a multiple burial containing 12 individuals. One individual was accompanied by an incredible array of funerary items, including: shell maskettes, gorgets, and beads; a ceramic bowl of native manufacture; copper hawk bells, gorgets, triangular ornaments, and beads; bone beads; clay beads; a cross of white metal; and stone pipes. MacCord (1991) has reviewed other avocational investigations at the site. T. Dale Stewart (cited in Potter 1984:11 and MacCord 1991:120), Potter (1984), and MacCord (1991, 1992) suggest this site, and not 44ST2, may be the main, post-contact locus of the village of Patawomeke (see 44ST2) (Reynolds 1881; Potter 1984; Manson and MacCord 1985; MacCord 1991, 1992).

44ST2, Potomac Creek. Excavations were initiated at this settlement, enclosed by multiple palisade lines, in 1935 by Judge William J. Graham. The Smithsonian Institution continued the investigations from 1938-1940. Euro-American items recovered from intact contexts were primarily ornamental and included glass beads, copper and lead buttons, hawk bells, copper chain, scissors, a copper abacus counter, and a star-shaped copper ornament (Stewart 1939, 1940, 1941; Schmitt 1965; Potter 1984).

44SN22, Hand. Approximately 300 pits and 109 burial features were documented at this large settlement excavated in 1965-1966 by the VSL and the ASV. Euro-American artifacts were recovered in two burials (one wood-hafted handwrought nail in each, as well as a pair of scissors in one) and one trash-filled pit feature (projectile point made from French chalcedony). The two burials were located on the northeastern margin of the site and not within the main cemetery area. Thirteen of the burials were accompanied by items of native manufacture (Smith 1971, 1984).

44WM119, White Oak Point. One white glass bead was recovered from a partial human burial at this multicomponent shell midden excavated in 1978 by Gregory Waselkov. Radiocarbon dates associated with this component (uncorrected): A.D. 1510+/-75, 1540+/-55, 1630+/-55, and 1690+/-55 (Waselkov 1982).

Piedmont Province

44HR4, Philpott. This site, suggested to correspond to the 18th-century Indian settlement of "Buttrum Town," was partially excavated in 1975 and 1985 by Richard P. Gravely. European trade goods are reported to have been recovered from a burial. Radiocarbon date: A.D. 1745+/-55. Gravely obtained a radiocarbon data of A.D. 1720+/-40 on another site in Henry County (44HR29), but reported finding no European artifacts in his excavations there (Gravely 1983:119; Egloff, Moldenhauer, and Rotenizer 1987:6; Moldenhauer 1987:276).

44PY21, Arey. Glass beads are reported to have been found in human graves salvage excavated from this site in the mid 1960s (MacCord 1989).

44HA65 and 44HA69, Kerr Reservoir. Glass beads have been recovered from these two sites currently inundated by the Kerr Reservoir. John Wells reports that over 100 burials and numerous pits have been disturbed by the water at 44HA69. This site has yielded Clarksville ceramics as well as a few shell-tempered cord-marked vessels identified as Monongahela (Keith T. Egloff 1992, pers. comm.; VDHR Archives).

Ridge and Valley and Appalachian Provinces

44BA3, Perkins Point. Numerous features, including a palisade enclosing 11 house patterns and 13 human burials, have been documented at this village excavated in 1972 by the ASV and in 1979 by James Madison University. Two storage pits, radiocarbon dated to A.D. 1510+/-440 and 1515+/-50, yielded a single glass bead each. Additional radiocarbon date: A.D. 1635+/-60 (Johnson 1982; Whyte and Geier 1982).

44BA15, Noahs Ark. Two structures and four burials have been identified at this nonpalisaded settlement excavated by James Madison University. A glass bead and a fragment of metal were recovered from a pit feature. Radiocarbon dates: A.D. 1030+/-110, 1305+/-80, 1225+/-70, 1250+/-85, and 1275+/-65 (Geier and Warren 1982).

44BA489, Jaegar. Geier interprets this site, where glass beads were found in Native American contexts, as a possible hamlet (Geier and McFee 1981; Geier 1983).

44MY3, Trigg. This palisaded village was completely excavated in 1974-1975 by the VSL and the ASV. Eleven house patterns were identified; and more than 760 associated features, including 309 human burials, were excavated. Of the 151 burials accompanied by funerary items, glass beads were recovered in 17. Hawk bells and other copper or copper alloy ornaments were also recovered. Radiocarbon dates: A.D. 1575+/-60 and 1715+/-80 (Buchanan 1986).

44RN21, Graham-White. Investigations conducted here by the VDHR in 1990-1991 documented scattered postmolds and 111 features, of which 28 were excavated. Euro-American artifacts recovered include small iron scraps, an iron trigger from a snaphaunce, fragments of copper alloy

sheet metal, and glass beads. Tubular shell beads from the site are represented by both purple and white varieties which fit the description of wampum. Glass bead types and the trigger support a 17th-century date for the site (Klatka 1991).

44RN39, Thomas-Sawyer. Ongoing salvage excavations have been conducted at this site since 1980 by the ASV and VDHR. One storage pit within the palisaded settlement has yielded a glass bead. Radiocarbon dates: A.D. 1585+/-60, 1600+/-90, and 1630+/-90 (Moldenhauer 1987:268; Barber 1988).

44SH1, Bowman. Twelve pit features, six burials, and a number of postmolds were documented at this site, excavated by the ASV in 1964. Radiocarbon dates: A.D. 1640+/-120 and 1710+/-120 (MacCord 1964; Walker and Miller 1992:176; VDHR Archives).

44SM8, Chilhowie School. Well over 100 human burials are said to have been encountered on this site during the looting that occurred when the school was being built. There are reports that two "bronze" ear plugs, red and tan glass beads, and an iron axe were recovered (Holland 1970:35).

44TZ1, Crab Orchard. Large portions of this palisaded village were excavated in 1971-1973 by the VSL and ASV and in 1978 by the VDHR. Features documented include 16 house patterns and 162 human burials. The only unquestionably Euro-American artifacts reported to date are two glass beads recovered from plowzone contexts. Radiocarbon dates: A.D. 820+/-70, 1420+/-60, 1570+/-120, 1610+/-55, 1805+/-60, and 1870+/-60 (Egloff and Reed 1980; MacCord and Buchanan 1980; McIlhany 1986).

44TZ9. Artifacts recovered from this stone burial cairn are reported to include two glass beads, 20 "brass" beads on a cotton string, a plate of mica, and an amethyst crystal (Holland 1970:41).

44WR3, Cabin Run. Portions of this site were excavated in 1967 by the ASV and in 1981 by Thunderbird Research Corporation. Features documented include a palisade line, possibly two buildings, and three burials. Radiocarbon date: A.D.1690+/-100 (Snyder and Fehr 1984).

44WG10, Mendota. As many as 500 human burials, some with elaborate funerary accompaniments, are said to have been looted at this large village site. One burial, presumably of a child, is reported to have had an iron axe in addition to Native American artifacts associated with it (Holland 1970:43).

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ARCHAEOLOGICAL MANIFESTATIONS OF THE VIRGINIA COMPANY PERIOD: A SUMMARY OF SURVIVING POWHATAN AND ENGLISH SETTLEMENTS IN TIDEWATER VIRGINIA, CIRCA A.D. 1607-1624

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INTRODUCTION

With the year 2007 fast approaching, the significance of the founding of the first permanent English settlement in the New World at Jamestown 400 years earlier is receiving increasing attention both in Virginia and across the nation. This follows the international attention just recently paid to the 1992 quincentennial celebration of Columbus's first voyage to the New World and the recognition that the "New World" was new to only one group of participants in these explorations, the Europeans. The founding of Jamestown is an event of national significance in the history of our country. Yet it also possesses enormous significance, though in a far different sense, for those here earlier, the Powhatans and neighboring Native American groups in Virginia whose ancestors can be traced back through archaeology for over 10,000 years.

In Virginia, this clash of two cultures is graphically represented both in historical documentation as well as archaeological sites surviving from the initial years of contact. While contacts occurred as early as the 16th century (Morison 1971; Quinn 1985; Turner 1985:208-211: Rountree 1990:15-28), it was not until the first quarter of the 17th century that they became sufficiently pronounced to have a major impact on both Europeans and Native Americans. This era, known as the Virginia Company period, covers the 17 year span from 1607 to 1624.

As part of Virginia's celebrations in 1957 for the 350th anniversary of the founding of Jamestown, a series of publications were released, including one on English settlements in Virginia during the Virginia Company period (Hatch 1957) and another on the Powhatan Indians (McCary 1957). In the mid-1980s, the Virginia Department of Historic Resources initiated an update of these studies in anticipation of planning for the 400th anniversary of Jamestown's founding (Opperman and Turner n.d.). Nearing completion, this study examines: (1) extant documentary sources for the more than 150 Native American and English settlements dating to the Virginia Company period in the James and York River drainages as well as Virginia's Eastern Shore, the core areas of interaction; (2) available archaeological data for such settlements; and (3) the likely preservation status of all currently identified, as well as projected, settlements based on the historical and archaeological research. From this historical and archaeological assessment of Virginia Company period sites, a series of recommendations are being established to help guide archaeological research on this topic as well as to influence land use and planning decisions over the next decade.

This paper summarizes results obtained from that study. It also has been expanded to include the more than 50 historically documented Virginia Native American settlements on the Rappahannock and Potomac rivers, areas of more peripheral but still significant interaction. We follow this summary with several observations on the effects of settlement as Native American and English cultures competed and clashed during the years 1607 through 1624.

HISTORICAL DOCUMENTATION

It is ironic that there is more detailed written documentation available about the Virginia Company period than exists for most portions of Tidewater Virginia in the last three quarters of the 17th century. The most important sources of narrative information are the various works of Captain John Smith (Barbour 1986), William Strachey (1953), Ralph Hamor (1957), George Percy (1922), and a number of others (Barbour 1969). The Records of the Virginia Company of London, published by the Library of Congress (Kingsbury 1906-1935) earlier in this century, are an invaluable source of historic data, as are the minutes of the General Court (McIlwaine 1979) and the records of the first General Assemblies (McIlwaine 1915). The survival of a considerable portion of the Virginia Land Office Records (Nugent 1974, 1977) constitutes another critical source of information concerning the "subdivision" of the landscape. The list of casualties following the 1622 uprising (Waterhouse 1933), the census of 1623 (Hotten 1962), and the muster of 1624/25 (Meyer and Dorman 1987) provide important

demographic information concerning the specific distribution of the English population at the end of the period.

In addition to written accounts, cartographic sources provide considerable information, particularly regarding the distribution of the Native American population. The so-called Zuniga map of circa 1608 (Barbour 1969:239) and Captain John Smith's published map of 1612 (Barbour 1969:374) are the two principal sources of cartographic information, with other maps, such as Robert Tindall's 1608 "Draughte of Virginia" (Barbour 1969:105) and the Velasco 1611 map for the Chesapeake Bay region (Barbour 1969:336), providing additional details. Smith's map alone provides locational data for more than 150 Native American settlements in Virginia. Earlier valuable documentation dating to the 1580s, and covering both Tidewater North Carolina and Virginia, include a remarkable set of watercolor maps and depictions of Native American settlements and lifeways by John White (Lorant 1965).

Finally, a number of published and unpublished secondary sources, dating from the later colonial period through the late 20th century, provide a considerable source of scholarly interpretation for the period at hand. These range from Robert Beverley's 1705 history of Virginia (Beverley 1947) to recent works by Helen Rountree (1989, 1990) on the Powhatans and early interactions with the English. Other recent contributions vary from historical examinations of the 1570 Spanish Jesuit mission in Virginia preceding Jamestown (Lewis and Loomie 1953; Gradie 1988), to anthropological and ethnohistorical discussions of Native American/English interactions during the Virginia Company period (Fausz 1985, 1987, 1990; Turner 1985; Potter 1989; Hantman 1990; Rountree 1993; Rountree and Turner n.d.), to historical examinations from both the perspective of the English and Native Americans (Craven 1971; Morgan 1971, 1975; Nash 1972; Vaughan 1975, 1978; Tate and Ammerman 1979; Sheehan 1980).

ARCHAEOLOGICAL DOCUMENTATION

Archaeological information about the Virginia Company period, however, is less available than many people would ordinarily imagine, given the interest in this era and the general availability of historical documentation. This archaeological review will consider what is known from the perspective of site prediction and site identification, both for Native American and English resources, in Virginia's Tidewater region. Known archaeological sites reflect an inadequate sample of English settlements and an even more woefully inadequate sample of Native American communities in a majority of localities. This sample of known

archaeological sites identified as dating to the Virginia Company period includes candidates for approximately 10% of all projected Native American settlements and 25% of all projected English settlements.

NATIVE AMERICAN SETTLEMENTS

The Native American occupants of Tidewater Virginia at the time of the arrival of the English in 1607 constituted a chiefdom-level society controlled by a paramount leader, Wahunsonacock, also known as Powhatan. Powhatan exercised centralized control, to varying degrees, over a population of approximately 13,000 or more individuals distributed over 6,500 square miles. If one looks at the historical record and the cartographic sources, the 31 districts under Powhatan's control, both those that he inherited and those that he acquired through conquest or intimidation, can be readily identified. The distribution of these districts, with principal villages and hamlets indicated, can be seen on both the Zuniga map (1608) and particularly Smith's map of 1612. Smith's geography is remarkably accurate in certain areas, based on its comparison to modern cartographic sources. Taking Smith's map and his designation of "kings howses" versus "ordinary howses" as a literal depiction of "villages" and "hamlets," one quickly can identify more than 150 such entities. This is too simplistic, however, to account for the character of Native American settlement practices during this period, or to predict the manner by which those practices are archaeologically manifested, a point we shall return to shortly.

In reviewing the archaeological record for Tidewater Virginia, only a limited number of sites have been previously identified as candidates for those Native American settlements depicted on maps or mentioned in accounts dating to the Virginia Company period. These include the following possible associations: for the Eastern Shore, Arlington (44NH277), the location of the settlement of Accowmack (VDHR Archaeological Archives); for the James River drainage, Great Neck (44VB7), the location of the settlement of Chesapeake, circa 1585 (Egloff and Turner 1984; Hodges n.d.), Dumpling Island (44SK93), the location of an unnamed Nansemond settlement (VDHR Archaeological Archives), Governor's Land (44JC308), the location of the settlement of Cinquoteck (Hodges and Hodges 1991; James River Institute for Archaeology 1991; Hodges 1992), Flowerdew Hundred (44PG41/65 environs), the location of an unnamed Weanock settlement (Barka 1975; Charles T. Hodges 1982, pers. comm.; VDHR Archaeological Archives), Jordan's Point (44PG1 environs), the location of another unnamed Weanock settlement (MacCord 1967; Egloff 1989; Mouer et al. 1992), Tree Hill Farm (44HE674), the location of the settlement of

Powhatan (McLearen and Binns 1992), and several additional sites identified as Chickahominy settlements (McCary and Barka 1977); for the York River drainage, Shelly (44GL318 environs), the location of Cantaunkack (Opperman and Turner 1989, 1990), and Purtan Bay (44GL32/33 environs), the location of the settlement of Werowocomoco (McCary 1981; VDHR Archaeological Archives); for the Rappahannock River drainage, Woodlawn (44KG19), the location of the settlement of Papiscone or Assuweska (Bushnell 1937; Land and Community Associates 1990), and DeShazo (44KG3), the location of the settlement of the second (upriver) Cuttatawomen (Bushnell 1937; MacCord 1965); and finally for the Potomac River drainage, Boathouse Pond (44NB111 environs), the location of the settlement of Cekakawwon (Potter 1982), and Potomac Creek (44ST1/2), the location of the settlement of Patawomeck (Schmitt 1965; Potter 1989; Stewart 1992).

The above examples account for no more than approximately 10% of all Powhatan settlements identified by the English. Further, most of them have been exposed to no more than cursory archaeological testing. Indeed, substantial excavations are limited to four examples: 44JC308, 44PG41/65 environs, 44PG1 environs, and 44ST1/2. In no case has there been a total excavation of the settlement, even when it has been faced with destruction through modern development. Clearly, archaeological data relative to Native American sites dating to the Virginia Company period is rudimentary at best.

Regardless of such limitations, the ongoing Virginia Company Period Archaeological Assessment conducted by the Virginia Department of Historic Resources (Opperman and Turner n.d.) is graphically demonstrating that in spite of ever-increasing threats of disturbance and destruction to archaeological sites in the region, one or more candidates for settlements in each of the Powhatan chiefdom's 31 districts likely has survived at least partially intact. Unfortunately, the area most severely impacted by modern development is precisely that area in which the key Powhatan-English interactions occurred during the Virginia Company period, the James River drainage. Still, the potential for archaeological studies of Native American groups in Tidewater Virginia, including portions of the James River drainage, during the early Contact period is great.

Most evident in our analysis of existing archaeological information on surviving Native American settlements dating to the Virginia Company period are limitations in available survey data. While extensive documentation exists on a multitude of recent archaeological surveys in Tidewater Virginia (Wittkofski et al. 1989; Turner 1992:101), such surveys only infrequently include specific locations of high archaeological sensitivity for Virginia Company period

settlements. Moreover, even as such data expand, we have identified three additional problems that must be addressed if we are to develop a comprehensive listing of surviving Native American settlements dating to this period. These include: (1) defining just what characteristics archaeologically constitute a Powhatan "village/hamlet," (2) determining the temporal sensitivity of diagnostic Native American artifacts that are used for dating Late Woodland/Contact period sites, and (3) determining whether the presence/absence of European trade items can be used as a routine means of identifying Native American Contact period sites. Each of these is discussed below.

Site Characteristics

Research over the last decade in certain portions of the region, particularly on the Virginia Northern Neck by Stephen Potter (1982), has demonstrated that late prehistoric Native American settlement practices in many cases can best be described as internally dispersed. A "village" may in fact have been distributed in clusters over several hundred acres, an efficient way to utilize the horticultural landscape and minimize the periodic relocation of large portions of a local population. The clean and tidy dots and houses on Smith's map may therefore reflect far more than 150 discrete archaeological sites as they are commonly defined in modern-day survey projects. While a number of larger "sites" are certainly out there, a sedentary Native American settlement also may be reflected by a myriad of small and large sites distributed over broad areas. Smaller, discrete late prehistoric sites could easily be interpreted as seasonal procurement camps during conventional survey projects, and their direct relationship to larger sedentary communities would go unrecognized. This is why we have employed the word settlement, rather than site, so often in this study.

The phenomenon of internally dispersed Native American settlements or communities (abandoning the village/hamlet concept for the time being) may be reflected on two cartographic sources, one from the Virginia Company period and the other from the 19th century. The so-called Zuniga map probably represents a copy, in an English hand, of a manuscript map that John Smith sent to England in 1608. Instead of the tidiness of Smith's 1612 published map (Figure 1), the cultural landscape as depicted on the Zuniga map (Figure 2) is characterized by a myriad of dots, blobs, and other mysterious markings. Many of these dot complexes are identified as named Native American communities and can be correlated with the dots on the 1612 map. We suspect that Smith was trying to cope with what he actually observed, a generally dispersed pattern of sedentary communities that was not comparable to a European mindset of cities,

FIGURE 1. Portion of Captain John Smith's 1612 map of Virginia (Barbour 1986) showing the James and York River drainages. Note the standardized symbols used in depicting settlements.

FIGURE 2. Portion of the 1608 Zuniga map of Virginia (Barbour 1969) showing the James and York River drainages. Note dotted depictions of numerous communities suggesting that they were dispersed settlements.

towns, villages, and countryside. It is ironic that the European portrayal of a dispersed community is still reflected by the depiction of the Pamunkey Indian community as an "Indian Town" on a mid-19th century map (Gilmer 1865) (Figure 3). This "town" entity consisted of no more than a dozen individually identified family residences dispersed over an area of approximately 500 acres. Perhaps we are glimpsing the Late Woodland period pattern of settlement on this map, recorded with language similar to that used by Smith on his 1612 map. There is a warning here also for archaeologists, as Potter (1982) has so aptly observed. Too often, we have taken a dozen small "household" sites spread over several hundred acres and treated them each in a discrete fashion, when in actuality they may have been part of an integrated community. This may be the principal reason why so few of the 150 settlements on Smith's 1612 map of the region have been identified archaeologically.

Thus, many of the Native American communities dating to the early 17th century are likely to be manifested archaeologically by a number of discrete sites as we commonly define them. Recent survey work at Shelly in Gloucester County, for example, likely has documented this phenomenon. A large settlement core is surrounded by a half dozen small sites that appear to be contemporaneous (Opperman and Turner 1989, 1990). These isolated, dispersed residential areas are probably comparable to the more isolated residential units depicted by John White for coastal Algonkian groups of North Carolina during the late 16th century (cf. Lorant 1965:191). Previously, archaeological investigations would have focused on core areas, overlooking the significance of outlying sites. Even more pronounced problems exist when there is no identifiable core area. This seems more likely to be the case for internally dispersed settlements of short duration, such as sites occupied for the first time just prior to European contact.

Alternatively, this internal dispersal within a community may be characterized archaeologically as one large site but with a low artifact density across it, sites that previously have been overlooked as likely Powhatan settlements. This was most recently documented at 44JC308, the probable location of the Paspahegh settlement of Cinquoteck, where intensive surveys provided little evidence of a major settlement. After large areas were stripped of overlying topsoil, however, a number of Late Woodland/Contact period domestic structures were identified in association with other features, including multiple burials (Hodges and Hodges 1991; James River Institute for Archaeology 1991; Hodges 1992). The same phenomenon has been recognized during the Virginia Company Period Archaeological Assessment when on several occasions sites of considerable extent, but characterized by light artifact densities,

FIGURE 3. Portion of 1865 Gilmer map of King William County showing the Pamunkey "Indian Town." Note the dispersed nature of this settlement, which had no more than a dozen residences scattered over an area of approximately 500 acres. Courtesy of the Virginia Historical Society, Richmond.

were precisely where Virginia Company period Native American sites were projected to be, based on historical documentation (Opperman and Turner n.d.). As with 44JC308, however, VDHR archaeological inventory data identified these sites as extensive lithic scatters largely devoid of Native American ceramics or other temporal indicators of the Late Woodland/Contact period. Clearly, light occupation dispersed over large areas reflects far different artifact patterns than those manifested by closely clustered settlements that we have until now tended to more typically associate with the Native American Late Woodland/Contact villages and hamlets.

It is important to recognize that nucleated, often palisaded settlements existed and have been identified archaeologically (Turner 1992, 1993). It also is important to recognize that frequent reoccupation of the same location during the course of the Late Woodland period often clouds our specific understanding of how early 17th-century settlement is manifested archaeologically. Nevertheless, comprehensive archaeological identification of early 17th-century Native American communities must accommodate a wider variety of site "types" than ordinarily imagined. It is almost identical to the common analogy of not being able to see the forest for the trees. Archaeologists should not miss the "village" in the midst of all those small "seasonal procurement camps."

Dating

Closely related to this is the problem of dating Native American sites. While the material manifestation of the Late Woodland period is generally known for most of the study area — in ceramics, for example, Townsend ware, Roanoke ware, Potomac Creek ware, and Gaston ware — it is only a fairly recent recognition by the archaeological community that certain manifestations may be later in date than others. In the James and York River areas, simple stamping on either shell-tempered or grit-tempered paste, defined as Roanoke ware and Gaston ware respectively, seems to be more reflective of the end of the Late Woodland period. This is not an absolute rule, however, since other types of ceramics are likely to be present at many sites, both in association with the "late" types and as a consequence of prior occupation of the same area during earlier portions of the Late Woodland period. Elsewhere, there is a gradual increase of shell-tempered plain over fabric-impressed types, with the exception of the upper Rappahannock and Potomac rivers, which are characterized by a similar increase of Potomac Creek plain over cord-marked types. We are only beginning to understand these subtle variations and just what they mean in terms of dating early Contact period sites in comparison to earlier Late Woodland period

manifestations (Egloff and Potter 1982; Mouer et al. 1986; Turner 1992, 1993; Potter 1993). As more and more Virginia Company period Native American sites are identified using historic archival sources, we should be better able to tease apart such distinctions.

Trade Goods

European trade goods, with few exceptions, are exceedingly rare despite considerable exchange between the English and the Native Americans, both official and unofficial. In general, for Tidewater Virginia, the presence of European trade goods is a completely ineffective way to identify Native American settlements from the early 17th century. At the present time, with the exception of Patawomeck (44ST1/44ST2) (Schmitt 1965; Stewart 1988; Potter 1989), and perhaps a handful of Chickahominy settlements (McCary and Barka 1977), virtually none of the likely candidates for early 17th-century Native American sites in Tidewater Virginia can be clearly attributed to that period on the basis of the presence of European trade goods found in sound archaeological context. Indeed, for all of Virginia and spanning all of the 17th and 18th centuries, only 41 individual archaeological sites and an additional two districts (encompassing 39 other sites) identified as Native American possess European trade goods, with the archaeological context of many of these being less than ideal (Turner 1991). Identification of Virginia Company period Native American sites through the presence of European trade goods is not likely to increase substantially by means of additional survey efforts, but rather will result from large-scale excavations. Further, these excavations must utilize data recovery techniques, such as wet screening, which allow for the routine recovery of small items. European glass beads, for example, while traded in large numbers, are difficult to recover from archaeological sites when using conventional excavation techniques.

ENGLISH SETTLEMENTS

For the English, careful examination of the documentary record has indicated the presence of approximately 60 English communities during the Virginia Company period. Many of these were only briefly in existence, while others were occupied for many years. These range from small domestic sites settled by an individual planter, his family, and servants to large corporate entities consisting of a variety of functional site types established by the Virginia Company itself or other groups of investors. Non-residential activities, such as industrial sites

(salt-making and iron-making as two particularly important examples), as well as strategic strong points and fortifications, also are reflected in the historic record.

The "dating" problem of Native American sites extends to English occupations. It is difficult, if not impossible, to accurately date English sites to one side or the other of the year 1625 on the basis of artifacts alone. It is the combination of "early-looking" assemblages, location, and historical documentation that indicate the few sites we know of which might date to the Virginia Company period. Compounding the problem is the remarkably light artifact density characteristic of many English sites dating to the Virginia Company period. In areas where English settlements are likely to be located, surveys need to be particularly sensitive of ephemeral archaeological manifestations that ordinarily might be dismissed as "background noise."

English settlement and expansion in Virginia during the Company period can be understood within a four-part temporal breakdown. The first period is represented largely by James Fort and a number of attempted, aborted settlements prior to the starving time, the winter of 1609/1610. These include Smith's Fort, a blockhouse at Hog Island, the attempts to settle Dumpling Island and the Falls, and Point Comfort. Of these "first phase" settlements, only the site of one has been positively identified, Smith's Fort in Surry County.

The second phase constitutes the expansion of Virginia Company settlements after the starving time and following the arrival of Thomas West (Lord de la Warre), Thomas Gates, and Sir Thomas Dale, from approximately 1610 through 1618/1619. Though only a small number of settlements are documented for this period, their occupation was more long-lasting and intensive than those previously. This period also reflects the expansion of the English into existing Native American communities, with the displacement of the Kecoughtans and portions of the Arrohatecks, Appamatucks, and Weanocks. These settlements include Smith's Island Saltworks, Kecoughtan, Bermuda Hundred, Rochdale Hundred, Henricus, Coxendale, and West and Sherley Hundred. Archaeologically, however, only a possible component (a boundary feature) of the Bermuda Hundred settlement and the possible identification of a portion of West and Sherley Hundred have been associated with English expansion through the end of the second decade of the 17th century.

The third phase represents the more extensive expansion of English settlements throughout much of the James River area following changes in Virginia Company policy which allowed the private holding of land by individual planters and by other groups of investors ("particular" plantations). The only nearby areas in which the English did not intrude were the Nansemond and

Elizabeth river drainages, the Appomattox River area, the Chickahominy River area, and along the York River. English intention to expand in those areas, however, was earnest, and land claims for the lower Southside and York River areas are known. By 1622, English settlement was widely but thinly distributed along the main trunk of the James River, from Falling Creek to Point Comfort and across the bay to the Eastern Shore. It is from this period that most of the known archaeological inventory derives, including elements of the Basse's Choice, Flowerdew Hundred, Jordan's Journey, Falling Creek, Weyanoke, Pasbehay, the Maine, the Neck-of-Land, Archer's Hope, Martins Hundred, Mulberry Island, and Accomack communities being positively or possibly identified.

The effect of this expansion on Native American communities was pervasive. By this period, the English had either partially or entirely displaced the Accomacks, Warraskoyacks, Quiyoughcohanocks, Weanocks, Appamatucks, Kecoughtans, Paspaheghs, and Powhatans, not to mention periodic but non-invasive aggression against other groups. Not surprisingly, those James River drainage groups not encroached upon by English settlements, the Chesapeakes, Nansemonds (barring one failed English attempt), and Chickahominies, were three of the most populous Native American groups within the drainage (Turner 1982:56). The expansion of English settlement over a four-year period from approximately 1618/1619 through 1622 was exponential compared to what had transpired over the previous decade. The resulting Native American uprising of 1622 is an understandable reaction and resulted in a short-term retraction and consolidation of English expansion. By the end of the Virginia Company period, however, many of the same English settlements which existed prior to 1622 had been reestablished. This constitutes the fourth phase, when the Native American groups were experiencing the aggressive reprisal for their actions during what Frederick Fausz (1985) has termed the second Anglo-Powhatan war.

Given the possibility that approximately 25% of all English settlements dating to the Virginia Company period have been identified, it is appropriate to review the known archaeological resource base in a more explicit manner. The following discussion of identified English settlements is organized on a geographic basis, from Virginia's Eastern Shore to the south bank of the James River, moving upstream towards the falls, and downstream towards the mouth of the James River along its north bank.

On Virginia's Eastern Shore, a number of archaeological sites have been identified which may be associated with the Plantation of Accomack established by the Virginia Company in 1619. Several of these sites are located on the north bank of Old Plantation Creek south of the Town of Cape Charles (including

44NH18, 44NH31, 44NH33, 44NH34, 44NH359, 44NH360, 44NH361, 44NH362, and 44NH363) (VRCA 1977a; McSherry et al. 1992). On the south bank of Old Plantation Creek, archaeological investigation of the late 17th-century Arlington mansion (44NH92) also resulted in the identification of a "puncheon" or "paling" fence associated with an as-yet poorly understood occupation probably dating to the Virginia Company period (Bedell and Luccketti 1988).

Archaeological survey efforts by the Virginia Research Center for Archaeology during the early 1980s resulted in the identification of three sites (44IW13, 44IW36, and 44IW39) probably associated with the occupation of Basse's Choice, the easternmost English settlement on the south bank of the James River during the Virginia Company period (McCartney et al. 1983). That settlement, at the confluence of the James and Pagan Rivers, was established by 1621, abandoned after the uprising of 1622, and reestablished by the end of the Virginia Company period. Recent excavations at 44IW13, necessitated by persistent shoreline erosion, revealed the presence of several structures associated with a large and diverse assemblage of household refuse (Bedell 1990). Although the analysis of this site has not been completed, it appears likely that 44IW13 initially was occupied during the Virginia Company period by Captain Nathanial Basse or one of his tenants.

The remains of Smith's Fort constitutes the earliest identified English site in Virginia and the only resource dating to the Virginia Company period positively identified in Surry County. Archaeological testing revealed a linear earthwork which defended a high bluff overlooking Grays Creek (Heite 1970; Luccketti and McCartney 1982). Historical documentation indicates that this outpost was abandoned in 1609 as the shortage of food at Jamestown sharpened before the "starving time" during the winter of 1609-1610.

Archaeological evidence of English settlement at Flowerdew Hundred has been revealed through extensive survey and excavation during the 1970s. Located along the south bank of the James River in Prince George County, Flowerdew Hundred was established by Sir George Yeardley in 1619 and constituted one of the most successful settlements dating to the Virginia Company period. A total of four sites probably originated during the Company period, including 44PG64, 44PG65, 44PG79, and 44PG82. Of particular importance are the remains of a substantial dwelling constructed of English siltstone, the "Stone House Foundation Site" (44PG64), and a fortified enclosure along the river (44PG65). Flowerdew Hundred constitutes one of the most intensively investigated private, or "particular," plantations dating to the Virginia Company period (Barka 1976; Deetz 1988).

Recent archaeological excavations at Jordan's Point in Prince George County under the direction of the Virginia Department of Historic Resources and Virginia Commonwealth University have revealed the presence of several sites dating to the Virginia Company period (Mouer et al. 1992). These sites (including 44PG300, 44PG302, and 44PG307) reflect a plantation, Jordan's Journey, established some time after 1619 by Samuel Jordan on land previously occupied by the Weanocks. The largest of these sites (44PG302) was found to contain the remains of a fortified compound inferred to be Jordan's residence and associated dependencies. The other two sites probably represent tenant households under Jordan's control. Although the investigation of Jordan's Point has not been completed, it constitutes one of the most thoroughly excavated English settlements dating to the Virginia Company period.

Bermuda Hundred, a well-known Chesterfield County landmark on the James River upstream from Jordan's Point, was initially settled in 1614 when forces under Sir Thomas Dale evicted its Native American inhabitants. Although Bermuda Hundred was one of the areas most intensively occupied by the English during the Virginia Company period, only one site has been identified that probably dates to that time. That site (44CF204) constitutes the remains of one of the defensive/livestock palisades erected by Dale across the peninsula formed by the confluence of the James and Appomattox Rivers (Gleach 1986). Portions of this defensive work are visible today as a linear ditch and berm.

Evidence of the Falling Creek Ironworks in Chesterfield County (44CF7) was first recognized during the late 19th century (Brock 1885). Uncontrolled digging at the site during the first half of this century by the property owner revealed a variety of industrial-related remains associated with the furnace established at the site by 1620 (Gregory 1957, 1960). The presence of undisturbed archaeological remains was confirmed by limited excavation conducted by the Archeological Society of Virginia during the early 1960s (MacCord 1964). The historical and archaeological importance of the Falling Creek Ironworks cannot be overstated, as it represents the earliest attempt at iron production in English North America (Hatch and Gregory 1962). It constitutes the only industrial resource presently identified that is associated with the English settlement of Virginia during the Company period.

Excavations by the Archeological Society of Virginia in 1970 revealed the presence of an early 17th-century occupation (44CC8) at the western end of Eppes or "Shirley Hundred" Island in Charles City County (Buchanan and Owen 1981). Although a portion of the field documentation was lost and had to be reconstructed, it appears that several features were identified, including the remains of a small impermanent structure possibly dating to the Virginia

Company period. This site may represent a portion of the West and Sherley Hundred community which was initially occupied as early as 1613. Two other sites on Eppes Island (44CC160 and 44CC163) also may reflect dispersed households associated with West and Sherley Hundred.

Several sites probably associated with the occupation of Weyanoke during the Virginia Company period were identified through survey efforts of the Virginia Research Center for Archaeology (1977b) in the mid-1970s. Weyanoke, located on the north bank of the James River across from Flowerdew Hundred, was occupied by tenants of Sir George Yeardley from approximately 1619 until the demise of the plantation during the 1622 uprising. Artifacts dating to the first quarter of the 17th century were recovered from sites 44CC46, 44CC55, 44CC57, 44CC81, 44CC82, 44CC83, 44CC84, 44CC85, 44CC88, and 44CC89. Six of those sites cluster together in an area near the James River, possibly reflecting a small community organized in a defensive manner. No archaeological testing beyond the initial survey has been conducted at these sites.

Recent archaeological survey efforts for a residential development in James City County have revealed the presence of several archaeological sites (44JC298, 44JC304, 44JC308, 44JC353, 44JC561, 44JC563) probably associated with the English settlement of Pasbehay (James River Institute for Archaeology 1991). Artifacts recovered from these sites at the confluence of the Chickahominy and James Rivers reflect a dispersed settlement of Virginia Company tenants which supplanted a Contact period Native American community by 1617. Extensive archaeological excavation at one of these sites (44JC298) supports this interpretation of English occupation during the Virginia Company period (Nicholas Luccketti 1992, pers. comm.).

Archaeological investigations undertaken during the mid-1970s by the Virginia Research Center for Archaeology revealed the presence of an English site west of Jamestown Island associated with the occupation of "The Maine," the mainland property of the Virginia Company of London (Outlaw 1990). A total of four structures and associated features were identified at 44JC41, reflecting the occupation of the site during the early 1620s, possibly by a Virginia Company tenant with a seven-year lease. The study of 44JC41 at the Maine provides important information for comparison with 44JC298 at Pasbehay (above).

An archaeological survey for a proposed residential development near Jamestown resulted in the discovery of four archaeological sites (44JC568, 44JC576, 44JC577, and 44JC578) probably associated with the "Neck-of-Land" settlement occupied during the Virginia Company period (Luccketti and McSherry 1991). The "Neck-of-Land" was a tract designated for the use of the clergy in the Corporation of James City and was initially occupied by the

Reverend Richard Buck during the early 1620s. Of the four sites identified, 44JC568 has the clearest historical and archaeological association with the Virginia Company period. None of the sites, however, have been investigated in detail.

The site of Jamestown is the location most commonly associated with the initial settlement of Virginia during the early 17th century. In spite of substantial archaeological testing at Jamestown Island under the auspices of the National Park Service, however, little information is available concerning its appearance during the Virginia Company period. Testing conducted during the 1950s failed to identify the location of the "first fort," although it is speculated that some remnants may remain under or in the vicinity of the Confederate earthworks west of the church ruins (Cotter 1958:11-17). The National Park Service recently has initiated a program to conduct a systematic archaeological survey of Jamestown Island. That agency also has made substantial progress in cataloging its archaeological collections from Jamestown. Both of these actions will serve as the basis for a more comprehensive understanding of Jamestown and the immediate environs. In addition, it is hoped that the planned archaeological survey efforts will resolve the continuing debate concerning the location of James Fort (Harrington 1985; Mardis 1989).

The archaeological inventory of the VDHR contains information about one site (44JC54) that may be related to the Archer's Hope community during the Virginia Company period. Archer's Hope, located on the west side of the confluence of College Creek and the James River in James City County, was settled by 1619 and by 1625 consisted of a number of households. Artifacts recovered from 44JC54 suggest an occupation dating to the early 17th century in a geographically distinctive area where evidence of the Archer's Hope community would be expected to occur. This evidence is preliminary, however, and needs to be confirmed through a more comprehensive survey of that locality. It also is possible that elements of the Archer's Hope community were located east of College Creek during the Virginia Company period, as reflected by the early 17th-century remains identified at Kingsmill (Kelso 1984).

Martin's Hundred, located downstream along the James River from Archer's Hope in eastern James City County, constitutes one of the most intensively investigated settlements dating to the Virginia Company period. This community was sponsored by a group of investors and constituted one of the most substantial "particular" plantations operated under absentee ownership. Extensive archaeological research by the Colonial Williamsburg Foundation during the 1970s revealed the presence of a fort and adjacent residential compound ("Wolstenholme Town") related in plan to contemporaneous English

settlements in Ireland. A number of isolated households dispersed away from the principal settlement also were identified, as well as archaeological evidence of English casualties resulting from the 1622 uprising. A detailed account of the history and archaeology of Martin's Hundred has been published by Ivor Noël Hume (1982), the most comprehensive work presently available on an English settlement dating to the Virginia Company period.

A reexamination of an archaeological assemblage recovered from the Civil War Fort Crafford site in Newport News (44NN70) revealed a previously unrecognized 17th-century component that probably dates to the Virginia Company period (Opperman 1985:Appendix D). Although the assemblage was recovered under poorly controlled excavation circumstances by a local avocational group during the late 1960s, the general location of the 17th-century component is known and corresponds with the projected location of a Virginia Company settlement based on land office records. The substantial presence of early 17th-century ceramics, associated with a tobacco pipestem assemblage with a mean date of 1622, further supports the interpretation that 44NN70 contains the remains of the Mulberry Island settlement established in 1619.

SETTLEMENT PATTERNS AND CLASHING POWHATAN/ENGLISH ADAPTATIONS

The remainder of this discussion will consider one aspect of Native American and English interactions during the Virginia Company period. That involves the similar relationships that both groups had with the local natural environment, facets of their subsistence technology, and the manner by which these relationships affected the events of the period.

One of the ways that the interactions between Native American and English cultural systems can be examined is from the perspective of the web of relationships between cultural and natural systems. These interactive relationships are expressed through the process of cultural adaptation, both in terms of the natural and surrounding cultural environment. A particularly important expression of that relationship for any cultural system is through its economic behavior (most commonly in matters of subsistence and settlement), although systemic and ecological relationships are not exclusive to those cultural elements. Such principles should be equally applicable to all cultural systems, not just to Native American groups but to European societies as well.

For the Virginia Company period, the natural environmental setting is established by the parameters of the given geographic region, the Coastal Plain physiographic province in Virginia. This is an area dominated by the

Chesapeake Bay and its constituent estuaries which extend inland to the fall line. While this estuarine area is one of the most productive natural areas in the world, resources critical to cultural systems, such as good soils and exploitable plants and animals, are not evenly distributed within the region. This is not to deny the richness of the region, but rather to point out that it is very patchy and clustered, particularly in linear bands in association with estuarine habitats (Rountree and Turner 1991; Turner 1992). This type of natural resource distribution equates with what Robert Carneiro (1970, 1981) has called resource concentration, a characteristic of certain natural settings that can have a significant effect on the trajectory of cultural evolution.

The cultural environmental setting for the Virginia Company period is defined by the presence of both Native American and English societies within the geographic area just described. By the end of the Late Woodland period, the development of a chiefdom level society can be at least partly explained by the natural resource concentration of the coastal plain environment (Binford 1964; Turner 1976; Rountree and Turner 1991). The arrival of the English in 1607 exacerbated the delicate balance that the indigenous groups were attempting to achieve in regard to their natural and cultural setting. This was a relationship in which the most valuable areas for subsistence activity were already under intensive exploitation, a situation characterized by resource concentration.

The adoption of essentially Native American subsistence practices by the English, particularly with regard to the cultivation of maize and tobacco, has long been recognized as one of the principal avenues of cultural interaction. That phenomenon, involving aspects of natural and cultural settings, ultimately resulted in competition between Native American and English groups which were pursuing similar subsistence practices at almost identical levels of technology and at many of the same locations (Figure 4). The English may well have wanted their relationship with the natural setting to have occurred on the basis of their own cultural model, such as reflected by John Pory's (1933:200) statement in 1619 that, "As touching the quality of this country, three thinges there bee, wch in fewe yeares may bring this Colony to perfection; the English plough, Vinyards, and Cattle." The reality was one of English adaptation to local cultural and environmental conditions: the growing of native crops using hoe and spade technology. By the end of the second decade of the 17th century, this adaptation was more successful than the indigenous population could accept or resist, an adaptation that was to continue well into the century as the English expanded beyond the James River drainage and Eastern Shore (Potter and Waselkov n.d.).

FIGURE 4. Portion of archaeological plan for Jordan's Journey (44PG302) showing a Late Woodland/Contact period Weanock settlement overlain by a Virginia Company period English enclosed settlement (Mouer et al. 1992). The Weanock settlement consisted of oval houses found both within and outside (not shown) the English compound. Such archaeological evidence graphically demonstrates Native American and English utilization of the same prime agricultural land along the James River and its tributaries.

In examining these relationships between Native American and English cultural systems during the early 17th century, a few points need to be kept in mind. First, the assumed technological superiority of the English cannot be accepted as a given for all elements of their society. Rather, their agricultural practices were not immediately adaptable to local conditions due to the lack of manpower and the character of the local environment (Bruce 1935:200-201; Carrier 1957:11, 27; Carr 1987:2-4). Second, and again related to the lack of manpower, the desire of the English to acquire Native American cleared land, almost universally associated with the most fertile soil types, was not a matter of convenience. It was, instead, a necessity due to their inability to exploit vast wooded areas not under intensive use by the Powhatan (Opperman and Turner 1991). Third, the view of Virginia as "virgin territory" is very much a myth when examined from the perspective of the need for cleared land and the restricted nature of that resource (Jennings 1975:15). Finally, by virtue of competing with the Powhatans for one of their most important restricted resources, cleared land, the English ensured that conflict would characterize early Powhatan/English relations.

From such a perspective, the Powhatans could have viewed the English as yet another district within their territory whose expansion upset the relative environmental stability, both natural and cultural, that the paramount chief, Powhatan, had attempted to achieve during the generation prior to 1607. It was the decision of the English to pursue a self-sufficient society in a natural setting characterized by resource concentration, amongst other factors, that influenced the trajectory towards conflict between the Powhatans and English.

SUMMARY AND CONCLUSIONS

Archaeological resources dating to the Virginia Company period are neither any more nor less potentially identifiable than other types of Native American and European sites in Virginia. There is no particular mystique to those resources associated with this particular historic context. They are potentially identifiable when: (1) archival data are fully employed for predictive purposes, in other words, when one bothers to look in the right place; (2) areas of sufficient size are examined, approximately 50 to 100 acres on average; (3) the character of settlement practices are adequately understood, particularly the internally dispersed nature of many communities; (4) special attention is directed towards assessing light or ephemeral archaeological manifestations; and (5) the full range of archaeological data recovery techniques are employed.

In spite of the above comments, there is a general lack of reliable archaeological survey data within most of Tidewater Virginia for areas with the highest potential for sites dating to the Virginia Company period. Exceptions to this rule are few and far between. If archaeological resources for this period are to be identified, then a comprehensive and systematic program of focused identification surveys is necessary. Although most of Virginia's archaeological inventory is generated by federal compliance projects, waiting for a federal undertaking to occur in just the right place is not an appropriate strategy. This lack of empirical survey data detracts from the role of historic preservation in land-use planning, particularly since such effects as shoreline erosion, mining, and residential and industrial development are proceeding at an ever increasing pace.

Archaeological data, even on a preliminary level, can be used to examine ideas drawn from historical documentation and anthropological theory concerning cultural behavior and processes, whether for the Virginia Company period or for other thematic/contextual constructs. In this case, a principal "type" of interaction between Native American and English groups in Tidewater Virginia during the early 17th century reflects the interrelationships between natural and cultural systems as expressed through subsistence practices, settlement patterns, and technology in the same environmental setting. The conflict between cultural systems during that period can be understood in part on the basis of these relationships, although this is not the only relevant interpretive perspective. Native peoples were not the only ones to interact with the natural environment (although sometimes one gets that impression from the popular literature), and the study of such adaptations is just as applicable to both Native American and European societies, not just the former.

Because of their clear national significance, the National Park Service is nearing completion of a National Historic Landmark theme study for archaeological sites in the Northeast dating to the Contact period and which reflect Native American and European interactions at this time (Grumet 1993). Virginia Company period archaeological resources are an important component of this study, thereby emphasizing their national significance. This alone is strong encouragement for the implementation, given earlier noted survey limitations, of a comprehensive, interdisciplinary program to identify archaeological resources associated with the Virginia Company period. The Virginia Company Period Archaeological Assessment being conducted by the Virginia Department of Historic Resources is intended to serve as the "groundwork" upon which such a program can be designed. These identification efforts need to be implemented in cooperation with local governments and private

property owners so that a sense of stewardship can be engendered to ensure the conservation of these important archaeological resources. The broad-scale identification of such resources is critical if there is to be any tangible evidence of the Virginia Company period available in the year 2007. It is only through such a "long view" that the archaeological community can become less reactionary, less crisis-driven, and more fully integrated with the historic preservation movement.

Further, existing archaeological information also needs to be fully exploited, particularly for those Native American and English resources that have been investigated in detail. Years worth of archaeological efforts related to the Virginia Company period remain unpublished and the resulting information is as inaccessible as if it were still in the ground. This information also needs to be disseminated to the public, whereby it may encourage an appreciation, awareness, and interest in the past. Such interest, in turn, can engender a sense of conservation and stewardship upon which the historic preservation movement ultimately must rely. As we approach 2007, this becomes an increasingly important challenge to the archaeological community.

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CHESAPEAKE CREOLES: THE CREATION OF FOLK CULTURE IN COLONIAL VIRGINIA

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> Modern America is descended from formative "colonial" America — not merely from transplanted Europeans — with all the cultural and ethnic complexity that characterized that effervescent era (Jennings 1975:173).

WHO ARE WE? SPIN-OFFS, FRINGES, AND CREOLES

In 1749, Moravian missionaries travelling in the Virginia backcountry found English, Scots-Irish, and German settlers living in wigwams made of saplings covered with bark. They wrote about their stay in one such house.

> We came to a house where we had to lie on bear skins around the fire like the rest. The manner of living is rather poor in this district. The clothes of the people consist of deer skins. Their food is Johnny cakes, deer and bear is their meat. A kind of white people are found here, who live like savages. Hunting is their chief occupation (Robinson 1979:148).

Other traveller's accounts and memoirs of the frontier settlements in the backcountry describe German and Scots-Irish communities in which women went "naked," anointed with bear's oil, with their hair tonsured in the Indian fashion,

while men wore breechclouts and moccasins. Men put on warpaint and deerskins as they joined their Indian friends in wars against their Indian enemies (Kercheval 1986). Charles Woodmason and other backcountry chroniclers described the frontier people as having lives that much resembled those of their Indian neighbors (Hooker 1953; Kercheval 1986). Christopher Gist (n.d.) tells us that George Washington, who spent much time in the backcountry, put on his "Indian clothes" when he left the "civilized" precincts of Tidewater; and Rhys Isaac (1982) describes how, on the eve of the Revolution, even many of the great planters of Virginia eschewed their traditional costume in favor of the deerskin tunics and moccasins that had come to symbolize the American creole as distinct from the European.

In the year 1712, missionary Giles Rainsford wrote:

> I had several conferences with one Thomas Hoyle King of the Chowan Indians who seem very inclinable to embrace Christianity and proposes to send his son to school....I found he had some notions of Noahs flood...(Rights 1957:35-36).

Two years later, Thomas Hoyle, living with the Chowans in the vicinity of Portsmouth, petitioned the council for a survey of his peoples' reservation. The Chowans had spent the past two years fighting for Virginia and Carolina in their war against the Tuscaroras and on that account had suffered "considerable loss in their plantations and stocks, losing seventy five head of hogs, a mare & colt, their corn destroyed by all of which and the wearing out of their clothes, they are reduced to great poverty" (Rights 1957:35-36).

Thomas Hoyle and his people wore English clothes and, at least in interactions with colonists, they used the English language and English names. They raised swine, kept horses, and expressed a belief in Noah's Flood. In addition, they fought and suffered on behalf of the English colonies against enemy Indians. Belief in the flood probably originated in the stories of Englishmen, but it had become incorporated as a natural feature of Thomas Hoyle's world view. Hoyle, in fact, had learned the story from his father, and had, in turn, taught it to his own son. Does this mean that Hoyle — whose name was borrowed from the English — was an Englishman? Certainly not. Did Hoyle's ability to speak English and to show that his education had equipped him to negotiate between his own world and that of the Virginia Colony have something to do with his position of leadership among the Chowans? Probably so.

Were Thomas Hoyle and the Chowans really English in disguise? Or were they what Nancy Lurie (1959) has called "spin-offs"? Or perhaps they were on their way to becoming what Helen Rountree (1990) has called "ethnic fringe people"? Were the backcountry settlers living in wigwams and anointing their bodies with bear's oil really confused Indians? Or were they another sort of ethnic fringe people?

Several years ago a "white" couple appeared at my excavation at Curles Plantation. They were pilgrims in search of a past — "roots," as we have come to call the sense of history that comes from recognizing that each of us is entitled to a genealogy. The man was paying homage to his ancestor, Richard Randolph of Curles Plantation, a descendant of Pocahontas. This Richard Randolph had moved to Georgia in 1787 and had established himself as the founder of a town there, the town in which my guest had grown up. They asked me to review my records concerning Curles and tell them what I could about their ancestor.

Ryland Randolph, the brother of the second Richard of Curles, son of the first, inherited the family's ancestral estate, known as Turkey Island, adjacent to Curles. He had devoted his adult life to embellishing the mansion until it became perhaps the greatest estate house ever to sit on the James River. Randolph genealogies list Ryland as having died unmarried and without issue, but the truth is that he had taken a slave woman as his wife, not an uncommon act at the time. His wife, Aggie, bore Ryland two sons. Upon his death in 1784, Ryland left a life estate to Aggie and his total bequest to his two sons. Thus, the family estate and graveyard of one of the wealthiest and most powerful of the Virginia gentry families passed to two mulatto children. Ryland's brother contested the will and took Aggie and her sons into slavery at Curles. Two years later Richard's health grew weak and he made his own will. He gave to the sons of his brother Ryland their freedom and a cash settlement, with the proviso that they leave the state and make no further claims on Turkey Island or other family properties. The following year young Richard Randolph, one of the sons of Ryland and Aggie, born a slave, arrived with his fortune in Georgia where he established a town, a lineage of families, and a reputation that persists to this day. This Richard was as he claimed to be — born of the great houses of Curles and Turkey Island, and a true descendant of Pocahontas. He was also the child of Aggie, an African-American woman whose fate remains unknown but imaginable (Mouer n.d.a).

Throughout Virginia's history, there has been constant interaction among peoples of differing cultural backgrounds, including Native Americans, Africans, and Europeans. Yet, our popular, and scholarly, conceptions of ourselves are as displaced English. Historians have frequently explained the uniqueness of

American culture and character as somehow the product of English seeds planted in a mystical American soil. A nebulous frontier geist is often raised as the agent of an American love for independence. The particular geography of the Chesapeake and its navigable rivers is forwarded to explain divergences between Virginia's and England's settlement and social systems in the 17th and 18th centuries (Beverley 1947; Reps 1972; Isaac 1982; Middleton 1984; Horn 1988; Fischer 1989).

In the early 1970s, there were three scholarly works published, each of which used the theme "Red, White, and Black" in its title (Craven 1971; Hudson 1971; Nash 1974). Each of these books was an attempt to bring peoples whose histories had not been adequately considered into the mainstream examination of the American experience. Yet, these works compartmentalized ethnic groups into red, white, and black boxes, which may have described well the ethnicity issues of the 1970s, but they certainly were not suitable for understanding America of the 1670s.

In a recent bold, but flawed, attempt to chart the cultural history of Colonial America, David Hackett Fischer (1989) draws a picture of Virginia's early culture as one dominated and defined by the so-called Cavaliers, who arrived here in moderate numbers following the English Civil War. This is not a new image, nor is it one that has remained unchallenged over the years. Fischer's arguments and evidence are fresh, however, and demand a new critique. I would like to offer an alternative, if equally unoriginal, interpretation: American culture is the product of the interactions of Old and New World peoples. The 18th-century frontiersmen, described above, did not arrive on these shores, trade in their linen tow and milch cows for buckskins and a log cabin kit in Williamsburg or Philadelphia, and beat a trail for the backcountry where, on the way, they developed a taste for bear's meat and Johnny cakes. The mid-18th century brought a new round of settlement in the piedmont and in western Virginia, which led to interactions among Germans, Northern British, Tidewater Virginians, Shawnees, Cherokees, Catawbas, Africans, and African-Caribbean creoles of diverse origins. These frontier experiences would create new ways of life that would come to dominate the American experience into the present century. But these patterns were based in part on a series of mature cultures that had developed in the Tidewater and fall line precincts in the 17th century, a diverse group of lifeways, beliefs, and technologies that, for lack of a better term, we may call Chesapeake Creoles.

Creolization is a concept borrowed both from folk usage and from the study of anthropological linguistics. It has been used in recent years in a rather general way by a number of scholars of culture history in the South. Perhaps the

most ambitious, and successful, exploration of creolization in the South has been Charles Joyner's (1984) detailed study of an African-American community in the South Carolina lowcountry. Joyner's work has also influenced the thinking of his colleague Leland Ferguson, whose recent book, Uncommon Ground, is a landmark in the archaeological exploration of creolization in the region (Ferguson 1992).

In some contexts, such as traditional New Orleans society, the term "creole" is an honorable identity, typically referring to persons with "mostly" European cultural backgrounds. In other places and times, the term is nearly pejorative, suggesting "half-breed" and "mongrel." Perhaps because of our racist history, some scholars seem to go to great lengths to avoid seeing creolization as an important process in the creation of American culture. Fischer, for example, seems to find little of consequence that he cannot trace to a British origin:

> During the very long period from 1629 to 1775, the present area of the United States was settled by at least four large waves of English-speaking immigrants....They carried across the Atlantic four different sets of British folkways which became the basis of regional cultures in the New World....Today less than 20 percent of the American population have any British ancestors at all. But in a cultural sense most Americans are Albion's seeds, no matter what their forebears may have been (Fischer 1989:6).

Like Mary Boykin Chestnut, that wonderful Southern Civil War-era diarist, who mused to herself that southerners seemed to think that mulattos "fell from heaven" rather than springing from the loins of white men and the wombs of black women (Williams 1949), I find the refusal to see what to me is an obvious truth of our heritage at times exasperating, sometimes amusing, but rarely rational.

Resistance towards creolization is reflected even in Charles Winick's Dictionary of Anthropology. Winick defines "Creole" as "a person who springs from the hybridization of a higher invading culture with a native culture and who retains many features of the latter. The term also means of foreign origin, but bred or growing in a colonial or remote country" (Winick 1972:140). Thus, a creole involves hybridization, and "higher" versus "native" cultures. The term can apply to both the transplanted colonial, as well as the acculturated native who "retains" some his own cultural characteristics. Winick defines the verb form, "creolization," as "the process by which a language degenerates into a trade

language" (Winick 1972:140). Here the author seems to confuse "creole" with "pidgin." In more typical linguistic usage, a creole is a fully formed hybrid language, with a complete grammar and vocabulary, while a pidgin is a simplified trade lingo. That an anthropologist should view the creative process of creolization as a sort of degeneracy is both appalling and enlightening.

There is one other term used by anthropological linguists that I would like to mention, and that is "borrowing." Winick's definition is "A taking-over by one culture of a feature of another culture, often through the influence of important persons" (Winick 1972:78). In the traditional wisdom, borrowing leads to pidgins and pidgins become creoles, as time, interaction, and hybridization continue. If we remove the racist and colonialist flavor from Winick's definitions, there is little remaining. Fortunately, there are better definitions available (cf. Joyner 1989; Ferguson 1992). In this essay I am speaking of true creole cultures, although their creation undoubtedly involved the processes of borrowing, and intermediary cultural forms we could regard as pidgins.

The concept of creolization as a powerful process in the construction of historical American culture has begun to find special proponents among students of Southern culture history, including archaeologists. Material culture played important roles in the creation and negotiation of identities, and archaeologists have come to realize this after a largely futile search for material evidence of transcendent ethnicities in the archaeological record. The honorably motivated, but often wrong-headed, search for "Africanisms" or "Indianness" in colonial artifacts and assemblages is yielding to ideas of identity construction, power relations, and representation. In the archaeology of 17th-century Virginia, much of this transformation of thought has taken place in the context of discourse concerning locally-made pottery and tobacco pipes, and odd little rectangular holes called (usually inaccurately) root cellars.

While the notion of "race" holds little currency in modern anthropology, "ethnicity" is, and has been for 50 years, a hot topic. There are many constructions of ethnicity, but most seem to agree that ethnic identity, whether created and expressed by an individual or foisted upon him/her by others, is a dynamic and polysemic set of behaviors. Ethnic groupings are situational, historical, culturally relative, fluid, negotiable, multi-dimensional, invented and reinvented every time they are used, discussed, researched, or thought (cf. Fischer 1986; Clifford 1988; Michaels 1992). Perhaps we should confine ethnic identities to the chimeral and conditional existence they deserve. Ethnicities are constructs, not givens. Any attempt at understanding the creation of culture in colonial Virginia requires that we investigate processes and contexts of identity

formation, not essentialist categories with unvarying material correlates.

First, I would like to suggest a series of contexts in which creolization emerged in the 17th century. These include, but are not limited to, sexual relations, trade relations, military alliances, frontier situations, and the particular contexts of the early plantation quarter. Second, I would like to suggest that there were certain groups and individuals — the "important persons" of Winick's definition (though probably not as he conceived them) — who served as interlocutors and interpreters of culture in the process of creolization. These persons or groups translated cultures and languages, and in so doing, they created "pidgins" of behavior that eventually evolved into "creoles" of culture.

From the earliest days of settlement, there had been colonists who were sent to live with Indians, to learn their languages and customs. Many of these became Indians or took Indian wives. Likewise, there were always those Indians who came among the English and learned their language and customs. Pocahontas was, of course, the most famous of these. Africans arrived in small numbers from the earliest decades of the colonial enterprise in Virginia. By the end of the 17th century, there were people who had been born in Africa, or among African-Caribbean creole cultures, who had learned, and helped create, the language and lifeways of Virginia. Some of these had become freemen, and some remained enslaved or indentured. Some had run away to the Indian world or, I suspect, had begun to form Maroon societies at the fringes of the colony. Some, like Anthony Johnson of Northampton County, had become successful planters in their own right — what some may call "black Englishmen" — but remained aware nonetheless of their distinctive identities (Morgan 1975; Breen and Innes 1980). All these people served as interpreters and creators of cultures that were pieced together through the interactions of very diverse populations.

Creole languages and cultures are variable. Their complexions tend to reflect the varying influences of their parent cultures. Dominant cultures dominate the creoles they help create. Specific aspects of culture, like specific phrases or lexical items in a language, may reflect differential influence of one or more groups, depending on their roles in that area. For example, African and Native American "roots" are particularly important in traditional Virginia foodways, because many of the foods and preparation methods were adopted by early colonists from Indian foodways and, subsequently, prepared by African slaves in plantation kitchens.

Creolization tends to reflect patterns of accommodation. Thus, out of myriads of possible ways available for decorating pipes, constructing pots, or cooking dinner, creoles tend to use methods and materials that reflect common ground or behaviors shared among the cultural "parents." Lastly, creolization

is reflected primarily in behavior, and behavior is not always visible in material items. It is the use to which items are put or, even more typically, the subtle variations in use, which distinguish ethnicities, classes, and even regional societies. Dominated groups may not be able to "display" their ethnicities in "traditional" ways, but may, more often, have to resort to subtle interpretive gestures played upon the materials and practices of the dominant culture. Throughout much of the 17th century, there was often no clear dominance between Indian and Colonial peoples, while Africans were always a small minority. Nonetheless, some Africans in 17th-century Virginia sometimes enjoyed as much, or as little, freedom as many English and Native American servants and yeoman. Without the clear relations of domination that would characterize later culture history in Virginia, we may expect — and indeed find — material evidence for creolization. This is the merging of common heritage traits, and the subtle "spins" of individual and group identities that were played upon these commonalities.

I would like now to weave together, by way of narrative fragments, these notions of contexts (sexual relations, trade relations, military alliances and plantation quarters), cultural interlocutors, and processes of creolization. We will arrive, soon enough, at archaeology and how it has raised the notion of creolization and has begun to produce interpretations of the construction of culture in early Virginia. Specifically, we will look at several classes of archaeological "artifacts": settlement patterns, houses, "root cellars," foodways, earthenware pots, and tobacco pipes.

"IMPORTANT PERSONS": INTERLOCUTORS IN AN INTERDEPENDENT CONVERSATION

The Virginia Indians generally welcomed the newcomers with offers of food, land, and women. Unlike the French and Spanish, the English seemed ill-disposed to take the Indians up on the latter offer in any formalized, legally sanctioned way. An exception, of course, was the marriage of Rolfe and Pocahontas, which brought such beneficial results to the colony that Sir Thomas Dale rather greedily demanded more of Powhatan's daughters for his leading men. However, the emperor of Virginia demurred (Rountree 1990:60-61). The symbolic marriage could serve as an object lesson to the remainder of Virginia's men that Indian wives were available for the customary courting and formalizing of proper alliances and mutual obligations among families and their communities. Such marital alliances had cemented Powhatan's chiefdom and continued to affect the paramount's dominion over some of those Indian groups not yet wholly

brought to the fold before the English settlement at Jamestown. The historically documented reluctance among the settlers to form marital alliances with the Indians has sometimes been interpreted as a repulsion to Indian women, a conclusion not borne out by numerous descriptions of the country's "comely wenches." John Lawson argued that Indian women were among the great attractions of Virginia and Carolina (Harris 1972).

Evidence for widespread encounters between English men and Indian women in Virginia is, admittedly, sparse. Such relationships are difficult, though not impossible, to ferret out of the historical record. Historians have often concluded that they did not exist; but, what are the implications of that conclusion. Throughout the 17th century, the sex ratio of men to women in Virginia varied from 4:1 to as high as 6:1 (Carr and Menard 1979; Horn 1979; Morgan 1975; Menard 1988). Are we then to assume that, for seven or eight decades, Virginia was home primarily to celibates and homosexuals, or that the few women present were essentially polyandrous? I do not doubt that each of these alternatives was sometimes elected. I suspect, however, that the records are missing something important, and on purpose.

British policy, especially after 1646, was to exclude and control as much as possible the interactions between colonists and Indians (McCartney 1985). This policy largely evolved because it was the daily contact, the easy familiarity, between colonists and Indians that had led to the high death tolls of 1622 and 1644. It was all those Indians coming into the plantations and sitting down to dinner who managed to kill so many Virginians with their own shovels (Noël Hume 1982). Thus, official policy was exclusion of such easy familiarity, including sexual relations. The official records of the colony seem to imply that this policy was observed. Less official accounts, such as the chronicles of John Lawson and the secret diaries of William Byrd, suggest otherwise.

In 1670 the Hudson's Bay Company was chartered. Its rules stringently proscribed relations between Company men and Indian women, and official company journals, from the 17th century to the present, make no official notice of such activities. Nonetheless, there are numerous private journals, letters, and other sources that make it amply clear that the men on the ground in Canada considered relations with "country wives" and Indian prostitutes a major advantage in the Indian trade (Newman 1985). It was no secret that the majority of men pursued such liaisons consistently and openly. One of the fort commandants was said to have had "country" marriages with no fewer than five Indian women at once. Some preferred to purchase the services of the "mercenaries," as they were called, rather than submitting to even the rather informal formalities of an Indian marriage (Newman 1985). By the end of the

17th century, some Indian groups in Virginia and Carolina had adapted to English interest in their women by creating a class of prostitutes, who were identifiable by special hair styles (Harriss 1972). Among the few words and phrases recorded by John Fontaine, most of which were trading terms, are several which Alexander (1972) thinks connote sexual transactions.

Between ca. 1607 and 1640, it is probably fair to say that the Virginia colony was dependent on Native Americans. That is not to say that English immigrants met all their needs through the Indians, but that, without Indian help and indulgence, the colony would have surely failed. It has often been noted that the English made some kind of a mistake settling at Jamestown. Five years ago I was asked by the National Geographic Society's Educational Media Division to help design an educational computer game called "First Settlement." The simulated situations suggested to me that there was probably only one clear choice: Jamestown. The main reason is that Jamestown was the only place we could find with adequate fresh water, a channel close to the land, and other necessary attributes, but which was not already settled by a substantial Indian population. In other words, the English did not simply choose Jamestown. They were allowed Jamestown. Likewise, while rarely unanimous in their opinions of the Virginia settlers, the thousands of Indian peoples of Virginia allowed the colony to continue until, at last, they were powerless to prevent it.

Sir Thomas Dale's explicit policy was to settle near Indians. That policy soon became one of settling on Indian lands. Every archaeologist of colonial Virginia can attest to the fact that most early 17th-century settlements sit directly atop a protohistoric Indian settlement. The colonists inherited the houseyards and fields already prepared for them by the Indians. They did not hack their homesteads out of the virgin wilderness; they moved onto lands already cleared and improved. In 1699, the French refugees were settled on the Monacan Indian Town tract. They spent their first winter in the recently abandoned Monacan houses, and the Indians came into their settlement trading baskets and pots (Brock 1886; Michel 1916). Thus, the English likewise encountered Virginia nearly a century earlier.

At Jordan's Journey, occupied between ca. 1620 and 1635, colonial trash deposits indicate that colonists used, broke, and discarded vessels of Gaston and Roanoke Simple Stamped pottery and, more rarely, of a shell-tempered, highly smoothed prototype of Colono-Indian pottery (Mouer et al. 1992). Indian pottery was also used by the early colonists near Pasbehegh, recently investigated by the James River Institute for Archaeology (Charles T. Hodges 1992, pers. comm.). Aboriginal ceramics provided a substantial portion of the coarsewares used by colonists. I suspect that the pots were brought into the settlements filled with

corn, beans, and other products of Indian fields and foraging. Eventually, the colonists learned from the Indians how to plant corn, beans, squash, and tobacco, but their obsessive focus on the latter was probably only possible due to their not having to worry much about the former. Indians brought meat and fish into the settlements regularly. In fact, some Virginians relied on Indian hunting and fishing guides into the 20th century (Rountree 1990).

Captain John Smith urged more productive pursuits than the search for precious metals which dominated much of the early exploration in Virginia. It has generally been supposed that the success of tobacco during the 1620s released the colony from its obsession with "phantasticall gold" (Tyler 1907:138). Nonetheless, numerous trash deposits at Jordan's Journey contained several pounds of micaceous and pyritic schists and other spangling rocks from the central and western Piedmont — rocks which had not been transported by the river, and which are not known to outcrop near the fall line (Mouer et al. 1992). The point here is that this archaeological evidence indicates a dimension of trade and exploration into the interior that has previously been unrecorded. This exploration or trade required not only the indulgence and participation of the Powhatans, but also of the Monacans.

Which of the 55 English persons at Jordan's Journey in 1625 had learned, as a youth growing up in the streets of London or Bristol, to hunt the numerous deer whose bones line the early 17th-century trash deposits? In England, deer hunting was a prerogative of the aristocracy. Virginia deer of the period were not like the controlled herds of today; they had been hunted year-round, persistently. Yet, in one deposit, we have found remains of several individuals, apparently killed, butchered, and dumped all at about the same time. The deer were killed in the fall or winter, the time of the great Indian communal hunts at the fall line. According to Miller (1988), deer and other wild foods played an important part in the early diets of Virginians. I have little doubt that these deer were, for the most part, brought into the colonial settlements by Indians.

The English colony remained as a guest of Virginia's Tidewater Indians until the conclusion of the 1644-46 war. By then, the tide had turned, and the Indians living within the Coastal Plain were significantly reduced in numbers and in status (Rountree 1990). However, the English remained dependent on Indians to buffer the very large frontier around them. English Virginians kept Indian servants captured during the war. As many of the Indians found themselves more and more impoverished, they offered themselves as servants and hirelings to the colonial planters (Rountree 1990).

By mid-century, Virginians were ready to tackle the frontier. Early explorers and traders, such as Abraham Wood and Thomas Stegge, began deep probes into the interior from their trading stations and frontier posts south of James River and at the fall line (Briceland 1987). Following these initial probes came the first tentative attempts to settle the falls and Southside areas. Here again there developed that "easy familiarity" that had bred earlier troubles. But the trade proved profitable to all concerned. Guns, iron and brass kettles, cloth and rum flowed out of Tidewater into the piedmont country of Virginia and North Carolina. Trader Thomas Hicks moved into the Nottoway country. William Byrd I, Robert Bolling, and others allied themselves with the Weyanoke and Appomattox middlemen and began sending huge pack trains into the lands of the Catawbas and Cherokees (Briceland 1987). Byrd called his workers in the Indian trade "woodsmen." He quartered the woodsmen in his fall line stone garrison, and he provided a home for the Appomattox Indians in his pasture. To round out his work force, Byrd imported numerous African slaves (Tinling 1976; Mouer and Kiser 1993).

The woodsmen of the 17th-century frontier knew Native American lifeways, as well as the trails through the land far from the settled Tidewater region. Some took Indian wives, and some were sons of mixed marriages and more informal liaisons. These creole peoples were not as numerous as the French-Indian coureurs du bois, but they played a significant role in transmitting English-Virginian culture to Indian peoples. Some of these people who dwelled between worlds were of African, African-English, or African-Indian parentage. The woodsmen procured the principal products of the Virginia Indian trade, deerskins and Indian slaves, both of which carried the tide of Indian culture back to the heart of colonial settlement. We cannot call these peoples of the frontier Indian, English, or African — red, white, or black — because no matter what their biological heritage, their culture bore the mark of the mingling of peoples from many backgrounds.

In 1675, following a series of incidents between Indians and colonists on the Potomac frontier, representatives of the colonial government of Virginia met with Cockacoeske, the Queen of the Pamunkey Indians, to request that she provide military assistance for a campaign against the Susquehannocks. The Queen, accompanied by a retinue that included her interpreter and her son, sat in stony silence, while the English, who mused that she well understood English but refused to speak it, seemed mystified over her lack of cooperation. Finally, the Virginians were told that the Queen remained angry over events that had transpired 20 years earlier. Her father, Chief Totopotomoy, and numerous other Pamunkey men, had been killed in a battle in which they had joined the militias

of Charles City and Henrico to unseat some 700 piedmont Indians who had settled near the falls of James River. The colonial militias, under the command of Edward Hill of Shirley, had apparently failed to join the battle. Hill was condemned, presumably for cowardice, but no compensation or recognition was ever offered the Pamunkeys (Neville 1976; Rountree 1990; Mouer n.d.b).

The requests in these cases for the assistance of what were then called the "friendly Indians," to help protect the frontiers of Virginia from hostile "strange" Indians, were simply business as usual. Despite the uprisings of 1622 and 1644, and their ensuing reprisals, most of the history of Virginia in the 17th century was one of mutual assistance and support between a declining Indian culture and a struggling colonial enterprise. This pattern — the alliance of Virginians with some Indian groups against others — would be repeated throughout the 18th century, with particular importance during the Seven Years' and Revolutionary wars.

Indian preference for and dependence on guns, cloth, and other goods is underscored by the nature and number of the gifts offered to the Pamunkey Queen, her son, and other Indian leaders at the conclusion of Bacon's Rebellion. In attempting to undo the effects of the Baconians, and to formalize a peaceful settlement of the frontiers, the Royal Commissioners ordered many yards of scarlet and purple robes, swords and scabbards, gold-embroidered stockings and breeches to be presented to the Indian leaders. The outfits prepared for the son of the Pamunkey Queen were especially sumptuous (Neville 1976). This man was named John West, and his father had been a Virginia planter. While John West had no official position within the Indian hierarchy, it was understandable for the colonists to assume that a creole, English-speaking man would serve as a mediator between colonial and Indian interests.

References to Indian slaves, servants, and tenants appear far more frequently in the historic record than our history books suggest. This is particularly true in the frontier counties such as Henrico, Lower Norfolk, Surry, New Kent, and Charles City. The vast majority of Virginians of the 17th century were servants or tenants, but the living and working conditions of the period mingled persons of all ranks, races, and genders into a type of cultural cauldron unique to the 17th-century Chesapeake. They lived together in small households, generally consisting of single males only. African, English, German, and Indian settlers, slaves, and servants were quartered together on the scattered tobacco farms of the Chesapeake. In the second half of the century there were increasingly higher numbers of Indians and, especially, Africans sharing the quarters and lifestyles of early Virginia (Morgan 1975; Rountree 1990). Many of the earlier generations of servants, now freed, took up new

lands and new batches of servants (Morgan 1975; Webb 1985). The colonists worked the ground planting primarily Indian crops in the Indian manner, although they also kept European livestock. The servants and yeomen of Virginia shed their former cultures and assumed creolized identities as Virginians.

INTERPRETING CREOLIZATION

I have argued that, through an on-going discourse that took place in a variety of loci among a number of interlocutors, the historical cultures of 17th-century Virginia can be viewed as a collection of creoles constructed in the interactions of diverse peoples. In this section, I would like to interpret some of the evidence of archaeology and culture history as it elucidates processes of cultural construction.

FOODWAYS: YOU ARE WHAT YOU EAT

I began my own exploration of creolization with an attempt to identify Native American "contributions" to Colonial Virginia's foodways. As I have presented those ideas at length elsewhere (Mouer 1987), I will only recapitulate selected examples here. Many scholars consider foodways to be among the more conservative of cultural expressions and behaviors. When we think about what we know of the more recent immigrant experience in America, this lends support to the notion that behaviors in the privacy of the kitchen and at the home table tend to reflect more durable dimensions of "ethnicity" than many more public behaviors. Food culture has a distinctive public dimension, however, and here we may especially view the creation of new cultural features in the interactions among peoples.

Werowances and Big-wigs

Feasting was an important aspect of Powhatan Indian culture. Frequent feasts, usually sponsored by local chiefs, may have functioned as informal redistribution and prestige-creating occasions, somewhat like the potlatches of Northwest Coast peoples (Rountree 1989). Much has been written of the hospitality of the Indians. Wherever the English visited, they came to expect to be lavishly feasted by their hosts. Parties of Indians could expect the same treatment. John Smith relates that huge amounts of food were brought to him and his lieutenants in each village they visited. What they could not eat was then distributed among the

remainder of his party and "commoner" Indians who gathered around the feast site (Barbour 1986). Some foods and preparation methods were apparently reserved for feasting, and sumptuary rules limited consumption of other foods to the nobility (Rountree 1989).

The settlement pattern that resulted from English takeovers of Indian settlements naturally resembled the Indians' own settlement system: numerous small dispersed farmsteads strung along rivers, with occasional larger settlements or higher population densities in areas with extensive bottomlands (cf. Isaac 1982). We read much of the self-reliance of the individual plantation, but it is an ecological truism that small isolated self-reliant communities are subject to failure at the first famine. In coastal Virginia, where the soils and climate are prone to drought, independence was more of an ideal than an actuality. England in the 17th century had the remnants of feudal patronage and an extensive market system to provide security from periodic shortages (Briggs 1983). Virginia's English had neither. Instead, they developed a system much like that of eastern Virginia's Powhatan Indians. They institutionalized a culture of hospitality and reciprocity. A man soon learned he could expect to be well fed by appearing at any gentleman's door. Food was traded for prestige. Generosity was the hallmark of a great man, among the Powhatan and Virginia English alike. Feasting became a common occurrence, and the presentation of social food became one of a gentlemen's principal responsibilities and a locus for acquiring and maintaining his prestige (Morgan 1952; Isaac 1982). I would like to suggest that the gentrification of Virginia in the mid-17th century provided a social and economic system as much like the chiefdom of the Powhatans as the English "cavalier" social order, which Fischer (1989) maintains was transplanted to the Tidewater from England.

Barbecue and Ethnicity Stew

One can readily point to the traditional cuisine of eastern Virginia and see the influence of Native American foodstuffs. The adoption of the Indian staples, maize, beans, and squash, was easily accomplished. These foods had spread throughout the world by the middle of the 16th century, although they had not been widely adopted in England (Tannehill 1973; Wilson 1974). Maize was viewed by the settlers as an alternative grain, clearly related to the common field grains of wheat, rye, barley, and oats. Beans were easily assimilated, because other varieties had been domesticated in the Old World. Legumes were important elements in the English crop rotation system, and thus, in the English diet (Tannehill 1973; Wilson 1974).

Indian staple crops were adapted to hand cultivation in garden swiddens, while English grains required large cleared fields cultivated by animal-drawn plows. It is true that Indian cultigens could be grown in swidden plots filled with tree stumps, but such was not the condition under which they were typically grown. The Virginia Indians had, through great labor over many centuries, cleared extensive fields along the lowgrounds of the country (cf. Mouer 1991a; Stevens 1991). It was the English, not the Powhatans, who needed to grow food in slash and burn plots, for they had confiscated the best fields and planted them immediately in tobacco (Middleton 1984). At any rate, it is doubtful that the strains of grain typically grown in England would have adapted well to hand-cultivated, often infertile, coastal plain soils.

Indian methods of preparing many foods did not differ significantly from English counterparts. Boiled stews comprised of grain and meat were typical of both cuisines, and of many African food systems as well (Hess 1984; Carson 1985). The denizens of Brunswick County, Virginia, like to claim credit for the stew that bears their homeland's name, but early accounts of Native Virginian foods include descriptions of slow-cooked stews of game meats, corn, and beans that most of us would recognize if we were to taste them at a volunteer fire department fair or church supper (Figure 1).

The use of deer and turkeys as food by the Indians was paralleled by the use of venison and pheasant in England, although game foods had become restricted by law to the aristocracy and nobility (Tannehill 1973; Wilson 1974; Briggs 1983). In Virginia, "everyman" could "eat like a king" in this respect, but the newcomers, mostly servants from urban areas, had to learn to hunt, dress, and prepare game from their Indian hosts. Fish, which were of critical importance to the Indian diet, were certainly no strangers to the English or Africans, although these most typically appeared as salt fish in the English diet (Wilson 1974). The slow roasting of fresh meat over an open fire is a cooking technique as old as any known, but it was a method which was not used in Post-Medieval England, except perhaps by upper classes in preparing feast foods (Wilson 1974). This cooking method was so common in the New World that the Spanish, who relearned the technique from Caribbean Indians, graced the method with their name for the cooking rack: barbacoa or "barbecue" (Beverley 1947; Hess 1984). The English introduction of swine to Virginia was highly successful. Foraging on the mast of the forests, the swine increased remarkably and, in their semi-feral state, they could be easily hunted or trapped. Using the Indian method of cooking bear or venison, barbecued pork became typical of Virginia's cuisine. By the end of the 17th century, most Indians relied heavily on pork as well, according to historical sources (cf. Rights 1957; Rountree 1990), but we

FIGURE 1. John White's Depiction of Brunswick Stew in 16th-Century Virginia (Plate XV, engraved by De Bry, from Harriot 1972)

desperately need more archaeological confirmation from the study of 17th-century Indian homesteads.

Drying and smoking were methods of meat and fish preservation widely used by the Indians, while the English were more used to salting. Smoking techniques were used around the North Sea, but were not common in the south and west English homelands of most Virginians (Wilson 1974; Bradley 1980; Davidson 1980). Salt was not easily had in Virginia, so the English adapted by using Virginia methods. Salt obtained from hickory ash could be rubbed into a ham, which was then allowed to smoke and dry hanging in an airy cabin. The cured ham was buried in hickory ashes to further preserve it. Today Virginia is world famous for this amalgam of Indian technology and English swine. Even more characteristic is the product of the Indian method for leavening pone (cornbread) with ashes, while substituting English wheat flour for the corn meal. In a wheat dough or batter the alkali leavening, particularly in the presence of an acid, such as sour milk or buttermilk, creates the dramatically risen bread we call biscuits. Nineteenth and 20th-century "baking powders," a basic ingredient in American cuisine, are little more than modern "improvements" on a fundamental Indian baking secret (Hess 1984; Mouer 1987).

Kate's Kitchen

During the last quarter of the 17th century, many of Virginia's cooks were women who had been raised in Africa, or among Africans in the Caribbean. During his short sojourn in Virginia during the 1670s, Nathaniel Bacon, Jr., of Curles Plantation in Henrico County, had a black cook named Kate, who lived with her mulatto daughter in their quarters in the loft of the separate kitchen building (Anonymous 1677; Mouer 1988, 1989). This pattern of African-American women being primarily responsible for the preparation of food became the norm, which continued throughout the 18th and 19th centuries in many parts of Virginia, as elsewhere in the South. African women brought gumbo, eggplant, black-eyed peas, sesame, yams, sorghum, watermelon, bananas, rice, and possibly tomatoes to the tables of Virginia (Hess 1984:xxix-xxxi). In addition, they introduced manners of preparing these, and other, dishes using cooking techniques, spices, and tastes developed in Africa, or learned among creole communities in the Caribbean or the deep South. The process of creolization of Virginia's foodways by African-American cooks has been very well described by noted food historian Karen Hess:

> These [African-Caribbean] creole cuisines were to color Virginia

> cookery to an extent which has not been fully appreciated, I think, because in addition to actual borrowings, there is the thumb print that each cook leaves on a recipe, even within the same culture, no matter how skilled she may be or how faithfully she follows the recipe. The Chinese call this phenomenon wok presence. It's a question of the temperature of the cooking fats, of generosity in measuring, of "nose," not to mention palate, of timing, of patience, of scores of nearly indefinable qualities that go into creating a dish, all of which are formed by years of working with food. And so it was that even when thoroughly English dishes were cooked by hands that had known other products, other cuisines, the result would never be quite English....The black presence was infinitely more subtle in Virginia cookery than that of New Orleans or the West Indies, but no less real for that, and the culture was sufficiently imbued with it to condition the palate of the entire community. And that warmth of traditional Virginia cookery constitutes its charm (Hess 1984:xxx-xxxi).

Roots and Fruits

Yams and sweet potatoes are, biologically, completely different things, yet in common folk usage the terms, and the vegetables themselves, are used interchangeably. Yams are African staples, while sweet potatoes were collected wild by Indians and grown as domesticates in Native American (including Virginian) gardens. African-American cooks learned to use sweet potatoes as they had used yams, and the methods of preparing and spicing these roots were identical (Hess 1984; Crump 1986). We confuse the two roots because their cultural treatment has been thoroughly creolized.

Another group of Native American staples is the squash family, including the winter squashes and pumpkins. Our folk taxonomies, as well as those of Colonial Virginia, distinguish clearly between the yellow or orange starchy roots (yams and sweet potatoes) and the yellow or orange starchy fruits (winter squashes), but the latter are frequently prepared in the same manner as the former. If we spice the boiled or baked meat of an Indian sweet potato, or an African yam, or an Indian pumpkin with Jamaican allspice and brown sugar, and then wrap it in an English paste, we make sweet potato pie or pumpkin pie. We can argue all day whether the result is Native American, English, or African. We can analyze the structural components of the pie's contents and the behavioral

dimensions of its use, but, I contend, we would do better to stop talking and start eating.

OF PIPES, POTS, AND PEOPLES

The challenge to archaeology is to determine ways to identify those "nearly indefinable qualities" in the material residues of foodways and other elements of culture. We are less likely to succeed by counting bones or sorting potsherds than by conscientiously seeking out plastic materials that preserve, in some way, the expressive acts of individuals and communities. Of course, clay is a most plastic medium, and one which is frequently used for expression. When fired to ceramic, it provides durable artifacts amenable to archaeological scrutiny. Among the material objects commonly excavated from 17th-century sites are plain or burnished colonoware pots and the locally produced tobacco pipes Matthew Emerson (1988) has named Chesapeake pipes. These objects are at the forefront of a current archaeological discourse concerning ethnicity and creolization.

In an article published in Science, James Deetz asserted that "most scholars working with colonoware now agree that it was made...by slaves" (Deetz 1988:367). At about the same time, Emerson claimed that his research "clearly demonstrates" that decorated Chesapeake pipes were, with very few exceptions, likewise made by African Americans (Emerson 1988:171). These publications elicited a detailed and lengthy response in which a number of specialists in Virginia's early colonial archaeology reviewed the considerable evidence that many of these pots and pipes were, in fact, made by Native Americans (Mouer et al. n.d.). At least one archaeologist (Edward F. Heite 1992, pers. comm.) has pointed out that European colonists were not without a strong tradition of slab-built low-fired earthenware. According to Heite, such pots were produced in Ireland and Scandinavia in the 17th century and were widely traded. It is certainly not beyond the realm of reason that one or more local potters of European origin could have produced some of the colonoware pottery and Chesapeake pipes in our archaeological collections.

The question, "who made these things?," is not a new one. Concerning the pipes, for example, J. C. Harrington asked this question as early as 1951:

> One of the most intriguing problems [of Jamestown archaeology] is that of the hand-molded pipes....Many are obviously of Indian manufacture, but some may have been made by the settlers following Indian styles and techniques. To further complicate

> the problem, some of these pipes which are most Indianlike in character, have well-formed English initials incorporated in the bowl decoration. Is this a case of the Indian copying a European idea; was the maker an "educated" Indian; or did a white man make an "Indian" pipe and put his initials on it? (Harrington 1951).

For a while it seemed that the debate on colonoware pottery and Chesapeake pipes would degenerate into an unseemly battle between the "Africanists" and the "Indianists." Instead, the studies by Deetz and Emerson focused renewed energy on these fascinating artifacts, resulting in a somewhat clearer understanding of the multiple cultural traditions that formed the social milieux of early Virginia. One result is a shift away from asking "who made these things?" to "what do these things mean?"

"Colonoware" is the generic name suggested by Ferguson (1980, 1992) to apply to hand-built low-fired earthenwares produced after, and as a consequence of, contact between European, African, and Native American peoples. In the South Carolina lowcountry, there is considerable evidence that much, perhaps most, colonoware was produced by African Americans on plantations (Ferguson 1980, 1989, 1992). Conversely, the vast majority of colonoware in Virginia has many attributes that indicate continuities with Protohistoric Indian ceramics. In addition, there is ample documentary and ethnographic evidence that Indians made this pottery both for their own use and for sale to colonists and slaves. Many examples of colonoware, or Colono-Indian ware, as Noël Hume (1962) named it, appear to be native ceramics produced in shapes influenced by European ceramics, or which suited European-American or African-American needs and tastes.

There are a few examples of these ceramics from 17th-century Virginia sites that do not appear to be easily classified as Indian-made objects. They include some vessels from the Pettus and Utopia Sites (ca. 1675-1710) at Kingsmill (Kelso 1984). These vessels are uncharacteristic in that they contain coarse inclusions of fossil shells derived from marl clays (Henry 1980:116-118; Mary Ellen N. Hodges 1992, pers. comm.). While the use of marl clays was common among late prehistoric and early Contact period Native American potters of Eastern Virginia, these coarse inclusions are atypical. Following the arguments of Ferguson and others, Hodges points to distinctive attributes of a few vessels in the Colonial Williamsburg collections that may suggest African-American manufacture. These ceramics are made of a sandy paste or clay body, and "at least one such vessel in the CWF collection is a small globular jar with

a constricted neck and everted rim similar in form to ceramics attributed to African American manufacture in South Carolina" (Mouer et al. n.d.).

Figure 2 illustrates a pot recovered from early 17th-century contexts at Jordan's Journey. This lugged bowl or pan is formed from a paste tempered with coarse sand or grit. Neither the form nor the paste characteristics are typical of contemporary Native American or European vessels. On the other hand, the pot exhibits both internal and external burnishing, and a shape which is common in African-Caribbean assemblages (Barbara J. Heath, Jay Harrison, and David Watters 1992, pers. comm.). In fact, one can purchase today, in craft markets throughout the Caribbean, earthenware vessels of this approximate shape, with inwardly-flanged lips and internal-external burnishing. In Jamaica, where it is made by African-Jamaican craftspeople, it is often sold as "Arawak" pottery. The Jordan's Journey vessel also is similar in shape, and in the presence of both internal and external burnishing, to a number of 19th-century vessels recently excavated from a farmstead near Manassas called the Monroe site (Ryder 1990). Up to nine additional 19th-century sites near Manassas have produced vessels of similar shallow pan forms with in-sloping, or slightly carinated, rim profiles and internally burnished surfaces. Robin L. Ryder (1992, pers. comm.) and Parker and Hernigle (1990) think it is possible that these vessels were made by one or more African Americans. Ryder, who is understandably reluctant to speculate on the "ethnicity" of the potters until her research is completed, has especially noted specific parallels between the Monroe site vessels and some common African-Caribbean forms.

More to the point, there are some common attributes throughout the general class of colonowares that may have been derived from African potting traditions. What the Jordan's Point pot, from the early 17th century, and the Manassas vessels, from the early 19th century, share are certain forms and finishing techniques not typical of either the eastern Virginia prehistoric Native American nor the early European potting traditions. Looking, for example, at just the typical ceramics of eastern and central Virginia in the Contact period, there are few examples of stone or stick-burnished ceramics, and those which are burnished are treated only on the vessel's exterior surface. Exterior and interior burnishing, complete with tell-tale burnishing facets, is apparently common in many African pottery traditions (Ann Markel 1992, pers. comm.).

"through pipes made of claie..."

> There is an herbe which is sowed apart by itself....The leaves thereof being dried and brought into powder: they take the fume

FIGURE 2. An Early 17th-Century "African" (?) Pot from Jordan's Journey

> or smoke thereof by sucking it through pipes made of claie....[Tobacco] is of so precious estimation amongest [the Indians], that they thinke their gods are marvelously delighted therwith: Whereupon they sometimes make hallowed fires and cast some of the powder therein for a sacrifice: being in a storme uppon the waters, to pacifie their gods, they cast some up into the air and into the water: so a weare for fish being newly set up, they cast some therein and into the aire: also after an escape of danger, they cast some into the air likewise....We ourselves during the time we were [in Virginia] used to suck it after their manner, and also since our returne, and have found many rare and wonderful experiments of the vertues thereof (Harriot 1972:16).

Tobacco was a common thread which bound together all of the peoples of 17th-century Virginia. Virtually every life was touched by tobacco. Everyone participated in the making of tobacco. Indian peoples supplicated and placated their gods with tobacco. They sealed their treaties and structured their public discourse with smoke from a shared pipe (Beverley 1947; Barbour 1986; Rountree 1989, 1990). Colonists came to Virginia to make tobacco, and they brought slaves and servants to help with its making. Tobacco smoking had spread throughout the Old World in the 16th century, and many immigrants, men and women, whether from Europe, Africa, or the Caribbean, were smokers. Archaeological collections from 17th-century sites are rife with the evidence. Most of the pipes we recover are mass-manufactured ball clay varieties from England, Holland, and France, but thousands of locally-made pipes have also been excavated. Many scholars have commented on the Chesapeake pipes, most of which are highly decorated. Emerson (1988) and Mouer et al. (n.d.) provide extensive reviews of the scholarship concerning these pipes, and two distinctive views of their meanings.

Trade in Algonkian decorated tobacco pipes reaches back well into the prehistoric period. Rouletted, and similarly decorated pipes, including those with the familiar "star" and "deer" motifs, have been excavated in prehistoric contexts in Pennsylvania, the Shenandoah Valley, and throughout much of the Carolina Piedmont. By the mid-17th century, these pipes had become ubiquitous on Chesapeake colonial sites and Indian settlements (Mouer et al. n.d.). Traditional Indian decorative motifs were augmented by new decorations, many of which were copied from English and Dutch pipes, signet rings, and seals. Many of the pipes were stamped with decorative devices identical to those used to stamp

furniture, silver, leather, and other European goods, but these stamps appear along with traditional Indian designs, and some designs that have parallels in African folk arts as well.

Chesapeake pipes are notable because they are craft items, meticulously made, and beautifully decorated. They are the most intriguing surviving examples of folk art of the early Chesapeake. The care and effort which attended the creation of these artifacts attests to their symbolic importance for those who used them. The designs on these pipes have things to tell us about life in a distant past. If we can "read" these pipes, perhaps we can hope to fathom something of the essence of American culture as it was created from the interactions of diverse people on the early Chesapeake frontier. Chesapeake pipes provide a nearly perfect medium for interpreting the creolization of cultures in the 17th century. They were ubiquitous. They were plastic expressive media. They were objects of personal identity and public display. They were fragile and relatively inexpensive to produce or procure. Most importantly, they remain in the archaeological record. That many of them are beautiful and unique objects of art is a bonus that makes their study all the more enjoyable and compelling.

Figure 3 illustrates some of the earliest locally-made pipes recovered in Virginia following contact. Many of these early pipes copy European forms. The Chesapeake pipes illustrated here are shown against a background that includes a large number of bowls from typical ball clay European pipes. These imported pipes typically have the bulbous form called "belly bowl" or "tulip bowl." They also tend to have flat "heels" or sharp "spurs" at the base of the bowl. Notice how many of the locally-made pipes copy these features. Nonetheless, all of the Chesapeake pipes illustrated are hand-made and stone burnished.

This collection of early Chesapeake pipes illustrates conditions of initial contact. The Jordan's Point assemblage, for example, contains both traditional Indian trade pipes, as well as locally made copies of European pipe forms. By the mid-17th century, however, copies of European pipes had become a minority form, and exuberantly decorated creolized versions of "Indian pipes" prevailed.

One of the most common designs on Chesapeake pipes is called the "running deer," although some of the deer seem to be standing rather than running, and some of the figures may be dogs, bears, pigs, or other animals. Pipes with such designs offer an excellent point of entry into the process of creolization and its expression. These pipes typically have little decoration other than the deer figure, executed on the front and back of the bowl, in rouletting infilled with white lime or other material. Deer were very important to Virginia's native peoples, and deer symbolism was used in a variety of ways. We can note the occurrence of two animals figured in shells on a deerskin

FIGURE 3. Early 17th-Century Chesapeake Pipes

CAPTION FOR FIGURE 3

1. This beautiful and unusually complete pipe comes from excavations at the site of Jordan's Journey, a large fortified English settlement in Prince George County, occupied ca. 1620-1635. The bevelled bowl is decorated with a rouletted rim band, a band at the bevel, a triangle executed in rouletted lines, and four bands at the bowl-stem joint. The pipe is well burnished.
2. This unique pipe bowl also is from Jordan's Journey. It resembles a prehistoric straight pipe, although it has a carefully crafted flange at the base of the bowl, suggesting this was part of a compound pipe. The pipe is well burnished, but otherwise undecorated.
3. From excavations at Curles Plantation, probably associated with the Thomas Harris occupation, this pipe is carefully constructed to mimic the tulip bowl form. It has a flat heel and is substantially larger than its import counterparts. The pipe is well burnished.
4. This pipe is from Jordan's Journey and similar to specimen 3.
5. This is another pipe from Jordan's Journey that follows the same general form as 3 and 4, but is not as well made. The bowl has a thick wall and does not show the careful attention to recreation of the bulbous shape, although a flat heel is present. The numerous voids or holes in the clay body show that the clay was not well prepared before the pipe was formed and fired. This example does not appear to have been burnished and may have been made by a servant living at the site.

garment in the Ashmolean Museum known as "Powhatan's Mantle," and thought to be the cloak given by Powhatan to Christopher Newport in 1608 (Rountree 1990). These animals are depicted in a manner that appears similar to the deer on Chesapeake pipes. Besides Powhatan's Mantle, there is other evidence of the use of similar animal symbols among Virginia's Indians.

Beverley, writing in 1705, described the Native Virginians' use of "a sort of heiroglyphick, or representation of birds, beasts, or other things, showing their different meaning by the various forms describ'd and by the different positions of the figures" (Beverley 1947:190). Likewise, in 1724, Hugh Jones (1956:60) noted that, "they have certain heiroglyphical methods of characterizing things; an instance whereof I have seen upon the side of a tree where the bark was taken off. There was drawn something like a deer and a river, with certain strokes and dashes; the deer looking down the river...." Much earlier (1671), John Lederer (1958) had described the Indians' picture writing, making special note that swiftness was denoted by the symbol of a stag.

The basic Indian deer motif is sufficiently plastic to permit other "ethnic" interpretations. The deer was not only important to Native Americans. The "running stag," the "standing stag," and other animal symbols are also common motifs of English heraldry as well. One Englishman of the mid-17th century observed the symbols on Chesapeake Native American shields and noted their similarities to English heraldic designs, prompting him to write a book on the universality of heraldry and its symbolism (Fischer 1989:306 n. 1). Likewise, animals are often depicted in African folk arts. Archaeological excavations show that colonists often relied on deer as a food source, especially early in the century (Miller 1988). In the later 1600s, the deer skin trade, like the beaver skin trade further north, was a major nexus of colonial and Native American interaction (Rights 1957; Nash 1974; Briceland 1987).

Figure 4A shows a deer motif from a Chesapeake pipe. This example is unusual in that it depicts elaborate antlers, but otherwise, it is similar to the designs on deer pipes found throughout the Chesapeake, in Indian sites in North Carolina and Pennsylvania, and in colonial sites as far away as Boston (Mouer et al. n.d.). The deer motif is most common along the Potomac River drainage, according to Hurry and Miller (1991).

Figure 4B depicts a similar decoration, but one that has been made by carefully incising, or scratching, the decoration into both the front and back of a pipe bowl. The long neck and tail, however, suggest that this is no deer. Instead, it appears to be a horse. The horse, if that is what it is, is placed exactly the same way as the deer on Indian pipes, and the pipe has been formed and polished in the Indian manner.

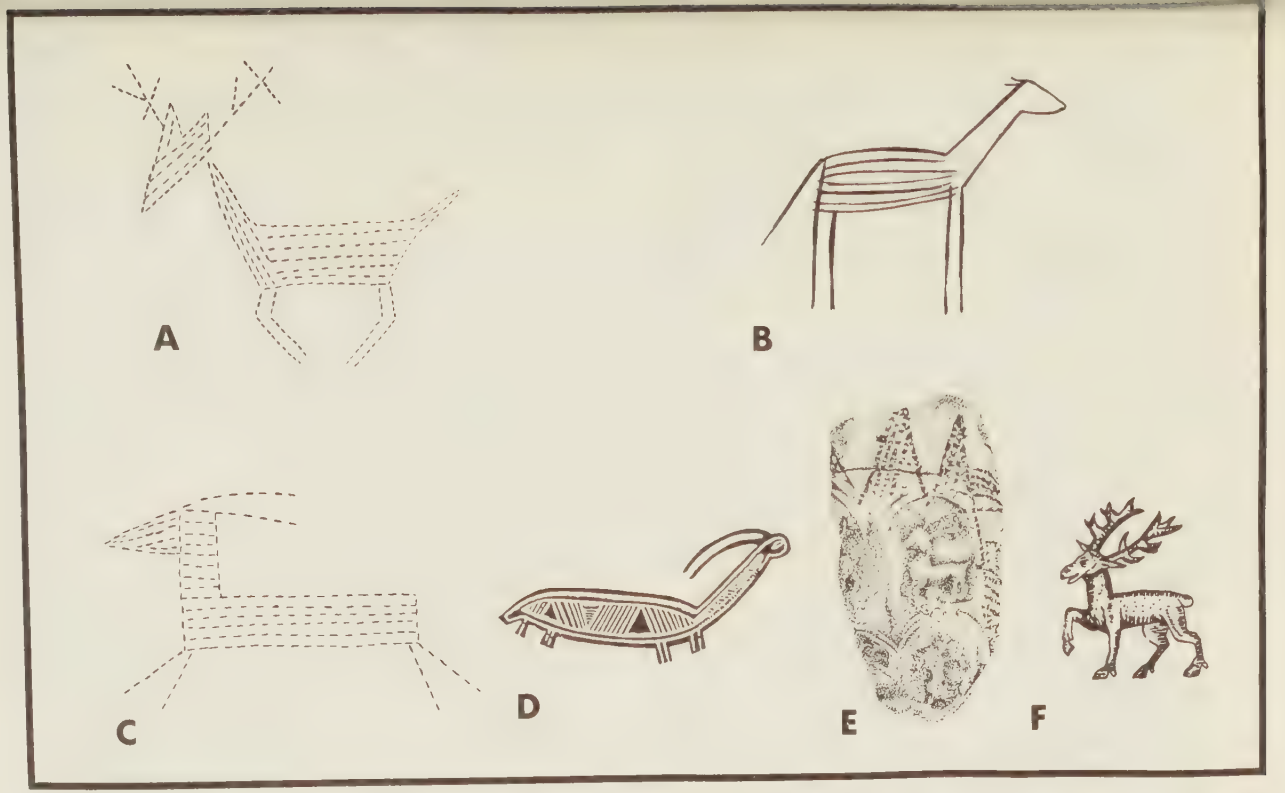

Figure 4. Pipe decorations: A. A typical deer figure in all respect but the antlers, which are unusual. This is from the Kingsmill Quarter pipe illustrated in Figure 6. B. A probable horse figure from the Kingsmill Quarter pipe shown in Figure 6. C. A possible horned animal figure from a pipe in the Jamestown collection. D. A horned animal from a carved calabash from Dahomey, West Africa (Emerson 1988:Figure 40c). E. A pipe bowl fragment, from Curles Plantation, marked by a signet ring with "stag standing" heraldic motif (ca. 1675-1680). F. An heraldic "stag standing" from Boutell's Heraldry.

FIGURE 5. Deer Pipes

CAPTION FOR FIGURE 5

1. This pipe, from a site in Virginia Beach, has identical deer figures front and back. These are infilled in white, and encased in a panel of rouletting. This example is well burnished.
2. This example is very typical. It has running deer front and back, and a simple rouletted band. The pipe is from the Camden site, a 17th-century Indian settlement in Caroline County.
3. This pipe, from the Kingsmill Quarter site in James City County, shows some simple elaboration on the deer pipe theme. The figures on the front and back are nearly identical, except that the front figure, shown here, depicts antlers, while the rear figure does not. The rim is bevelled and embellished with a single band.
4. From the Walter Aston site, Charles City County, this piece has running deer figures front and back, a simple rouletted rim band and slight rim bevel, and is lightly burnished.
5. This beautiful, and unique, example from the Kingsmill Quarter site contains no rouletting. The design is carefully incised into the clay. There are identical animal figures front and back, and the bodies of these are filled with horizontal lines, just as in the rouletted examples. The figures and the incised rim band are all infilled with white material, and the pipe is well burnished.

Figure 4C depicts another animal from an otherwise typical "deer" pipe. This animal, however, has long singular horns. Emerson (1988) has shown how this gazelle-like animal is very similar in form not only to some African animals, but to West African depictions of such animals. Figure 4D shows an animal figure found on a calabash (gourd) from Dahomey, Africa. The traditional Native American "deer" seems curiously transformed, perhaps by an African pipemaker.

Figure 4E illustrates a pipe bowl recovered from Nathaniel Bacon's Curles Plantation in Henrico County, Virginia. Stamped around the middle of the bowl is a repeated oval cartouche containing a stamped impression of an English heraldic stag (Figure 5F). The cartouche is almost certainly the imprint from an English signet ring of a type that was traded to the Indians. Nathaniel Bacon was an Indian trader living on the frontier, and his probate inventory included large quantities of "Indian truck." Living on his plantation in 1677 were five "Negro," one "Dutch" (or German), one mulatto, and six Indian servants (Anonymous 1677; Mouer 1988, 1989, 1991b). Who made the Curles stag pipe? An Englishman with a signet ring? An Indian with a trade ring? An African who remembered from his youth calabashes decorated in rouletting with triangles and gazelles? This pipe illustrates well both the difficulty of seeking specific ethnic identities in artifacts, and the potential rewards of interpreting Chesapeake pipes as records of the construction of creole cultures.

Some of the most popular motifs found on Chesapeake pipes seem to share or combine elements of Native American, African, and European decorative arts. An example of this is the "star," which is typically an eight-rayed rosette. While the deer motif is very common in the Potomac River drainage, the "star" is perhaps the most common single motif found on sites along the James (Hurry and Miller 1991). Star pipes have been excavated from prehistoric sites, so there is little doubt that the star motif began as a symbol on Native American trade pipes. However, star pipes became more frequent, and more elaborate, after the founding of the Virginia colony.

The eight-rayed star is very similar to a device that is commonly found on German stoneware "Bearded Man" bottles (Figure 6). These bottles were popular in 17th-century America, and have been excavated from both colonial and Indian sites. The device also is similar to a common English decoration, the compass rose (or lute rose). An eight-rayed star, or eight-leaved flower (octofoil) is also an English heraldry symbol. Among the embellishments frequently found on the simple star motif in colonial pipes is the placement of small groups of circular or floral stamps near the center of the star and at the ends of the rays. Emerson (1988) believes this reflects a decorative grammar

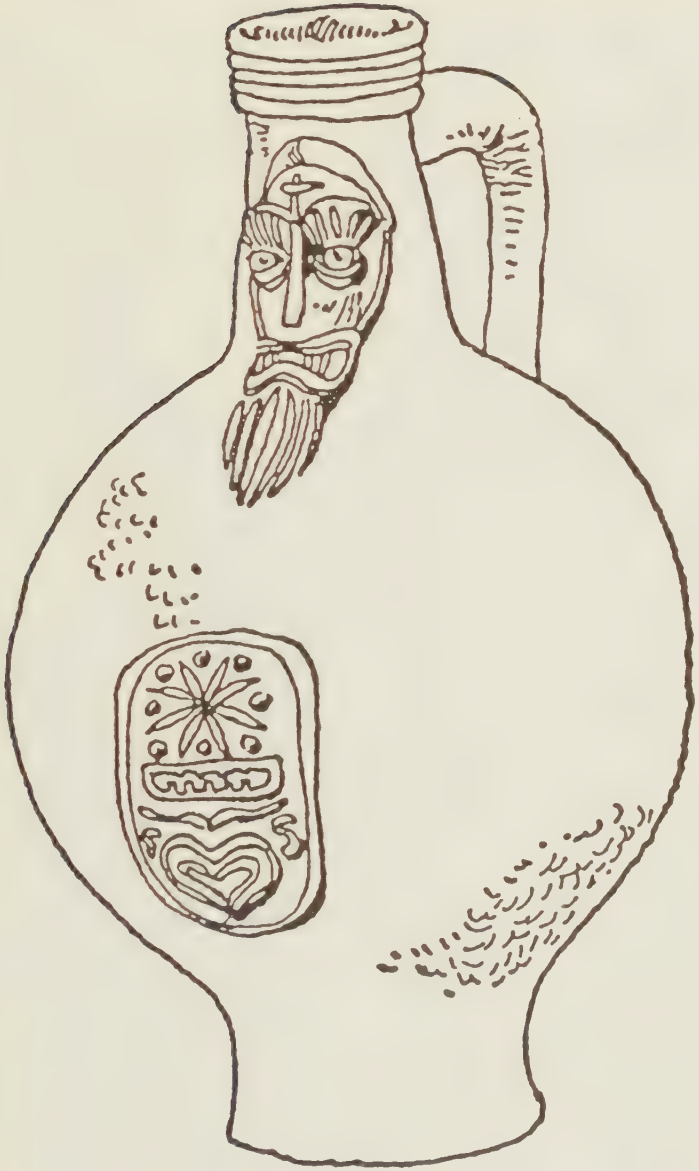

FIGURE 6. Eight-ray "star" on a 17th-Century Bartmann Bottle

FIGURE 7. Star Pipes

CAPTION FOR FIGURE 7

1. This nearly complete example from the Walter Aston site, Charles City County, has four-pointed stars on the front and back. The relatively simple decoration on this pipe includes rouletted rim and heel bands and white infill.
2. This pipe from James City County contains an unembellished eight-point star facing the smoker, and a possible boat on the opposite side. Rouletted rim and heel bands are present, and all decoration is infilled with white material.
3. Facing the smoker on this pipe, from the Curles Plantation site, Henrico County, is an eight-point star embellished with groups of small circular stamps at the center and ends of the rays. The opposite face has an intricate figure, also comprised of rouletted arcs and circular stamps. The figure has six star-like rays emanating from a vertical lozenge-shaped central figure. The overall impression is a depiction of an insect. The stem contains bands of rouletted lines and triangles.
4. From the Curles Plantation site, Henrico County, this pipe has a simple eight-point star, formed of single rouletted lines within a quadrangular panel. On the opposite side is a figure of geometric line-filled panels, all executed in rouletting and filled with white material. Simple bands of rouletting at the rim and heel complete the decoration on this unusual pipe.
5. This pipe is from the Utopia site, James City County. Facing the front is a boat figure executed in rouletting. The reverse has a complex eight-pointed star with central stamps. There are rouletted rim and heel bands and triangles on the stem.
6. Facing the smoker on this pipe from the Utopia site, James City County, is an eight-point star with stamps at the center and ray ends. The front of the pipe is plain, as is the surviving portion of the stem. There are rim and heel bands and white infill on all rouletting.

FIGURE 8. Chesapeake Pipes with Indian-Trade Motifs

CAPTION FOR FIGURE 8

1. From the Kingsmill Quarter, James City County, this well-burnished pipe, with a bevelled bowl and plain stem, depicts identical figures front and back that are similar to the "running deer." Instead of a head and tail on the upper part of the figure, however, the form mirrors the depiction of legs. This design possibly represents a deer skin rather than a deer. Deer skins were the principal commodity of the Indian trade, and their depiction on trade pipes could be expected.
2. Like the deer pipes, this example, from the Walter Aston site, Charles City County, also exhibits identical figures front and back. This figure appears to represent a skin or pelt, here depicted vertically on the pipe rather than horizontally. The figure is executed in rouletted lines, and the "body" is overstamped with small circular stamps, not unlike the spots on a young deer or a bobcat.
3. The bowl of this unusual pipe, from the River Creek site, York County, contains three examples of a four-pointed motif, executed in rouletting with white infill. Bands of circular stamps with cross-hatch fill are found on both the bowl and the stem. These bands on the stem are separated by bands of rouletted triangles. The odd four-pointed figure may also represent an animal pelt.
4 and 5. These two pipes, while very different in many ways, both exhibit a design which may represent a plant, perhaps corn or tobacco. Specimen 4, from Kingsmill Quarter, has a faceted bowl with chamfered edges and "nicked" corners at the rim. The "plant" motif is found on all four faces. It has been executed in incising with white infill. Specimen 5, from Jordan's Journey, Prince George County, depicts the "plant" motif in a band around the bowl executed in rouletting.
6. This highly unusual pipe, from the Pettus site, James City County, is in the form of a trade hatchet or tomahawk. The upper part of the bowl is the "hammer" end, and the hatchet blade is depicted on the base. Very similar pipes, made in pipestone or metal, circulated throughout the northern U.S. and southern Canada in later years as "peace pipes." The bowl is pierced on the right side to accommodate a stem, and is decorated with zones of rouletted lines.

FIGURE 9. Chesapeake Pipes with Ciphers

CAPTION FOR FIGURE 9

1. This first example, from Virginia Beach, is crudely decorated. The tool used to produce the incised marks may have been a fingernail. Towards the base of the bowl there is a poorly incised "Ph," or something similar. Towards the top of the bowl is a rectangular panel containing the letters "R. R.," as well as some other undecipherable marks. This pipe does not appear to have been made by an accomplished craftsperson; it may have been made by someone for his own personal use.

2-4. All three of these pipes are from the Walter Aston site, Charles City County. They, and several other very similar examples from the same site, all contain eight-point stars on the front of the bowl. Facing the smoker is a panel embellished with groups of stamps, and within the panels are initials. Specimen 2 is one of two pipes with the cipher "WA," most likely representing Walter Aston. All three pipes have rouletted rim and heel bands and white infill.

5. This pipe from the Curles Plantation site, Henrico County, is an example of a fluted or faceted pipe, a type which often contains no stamped or rouletted decoration. In this case, the only decoration is the initials "IH," the "I" being a 17th-century rendering of the letter "J." The monogram probably represents Joan Harris, wife of Captain Thomas Harris, who owned Curles from ca. 1630 until his death in 1654. The pipe was recovered from fill in the cellar of the Harris house.

FIGURE 10. Unusual and Undecorated Chesapeake Pipes

CAPTIONS FOR FIGURE 10

1-2. These are examples of pipes that Emerson believes exemplify African influence in Chesapeake pipe art, primarily because of the similar uses of lines and stamps. Specimen 1 has a faceted bowl decorated with simple rouletted bands and clusters of circular stamps. Specimen 2 has a bevelled bowl with a crisscross figure executed in incising, with the rays of the cross lined with circular stamps. The front of this bowl contains a triangle, also incised and surrounded by circular stamps. Both specimens have white infill, are well burnished, and were recovered from a 17th-century well in James City County.
3. This pipe, from the River Creek site, York County, has another motif that Emerson (1988) considers to have an African basis, and what he calls the "double-bell." He illustrates a very similar motif on a recent clay pipe from Cameroon and discusses this figure in other contemporary African art. This example has the double-bell executed in rouletting on both faces of the bowl. Vertical elements of aster stamps divide the center and enclose the edges of the motif.
4. This is an example of a plain faceted pipe from the Chesopean site, Virginia Beach. Most of the pipes made in this shape have no further decoration, although many, like this one, are highly burnished.

that is typical of some West African folk arts. We may never know the meaning of the star devices to the Indians who first used them on Chesapeake pipes, but it seems likely that these stars were adapted for, or adopted by, English and African pipe smokers as a culturally familiar symbol. Unlike the deer pipes, star pipes typically have different figures on the front and back of the bowl.

Figure 7 shows a number of "star" pipes. Two of these pipes also include figures that may represent a boat, perhaps one of the small sailing craft used by colonists in the rivers and the Chesapeake Bay. While "boat" figures, if indeed that is what they are, are rare, they are often paired with an eight-pointed "star" on the same pipe. One particularly elaborate example, not illustrated here, was excavated at Flowerdew Hundred in Prince George County. This pipe has a star on one face and an intricately detailed two-masted ocean-going ship on the other.

Chesapeake pipes were elements of the Indian-colonist trade system. In their design motifs, the pipes in Figure 8 may symbolize economic interactions between colonists and Native Americans. These include possible depictions of deer skins and other animal pelts, tobacco plants, and a trade hatchet.

Many of the symbols on Chesapeake pipes may signify an owner, a maker, or a location, but if this is the case, we are generally not able to decipher the symbols' meanings. Occasionally, pipes are marked with English initials. The initials probably represent the pipe's owner. That the makers of the designs may not have been literate is suggested by letters that are frequently backwards or otherwise incorrect or incomplete, although this may simply represent cipher design similar to that used on signets and seals. Figure 9 illustrates some "ciphered" pipes.

The repertoire of decoration on Chesapeake pipes is vast. Emerson (1988) has compiled a dictionary of 243 motifs and characters, and these occur in uncountable permutations and combinations. While some motifs, such as the deer and star, are fairly common, other pipes seem to express the individuality of the pipemaker, or reflect styles from atypical sources (Figure 10).

That designs, functions and forms of colonoware pottery and Chesapeake pipes share elements from Indian, English, and African origins suggests that these elements were selected from among a large universe of designs and forms, and that it was the set of shared elements which came to characterize creole folk traditions in the Chesapeake. This is not simply acculturation. The mingling of European, African, and Indian peoples of diverse origins in the plantation quarters and trading networks of the colonial Chesapeake provided the social contexts for the development of creole cultures and these clearly creolized artifacts.

> What might be called the "creolization of black culture" involves the unconscious "grammatical" principles of culture, the "deep structure" that generates specific cultural patterns. Such grammatical principles survived the Middle Passage and governed the selective adaptation of elements of both African and European culture. Herded together with others with whom they shared a common condition of servitude and some degree of cultural overlap, enslaved Africans were compelled to create a new language, a new religion, indeed a new culture (Joyner 1989, quoted in Mintz and Price 1992:viii-ix).

African-American cultures are, in a real sense, the product of the 18th, 19th, and 20th centuries. There were very few Africans in Virginia throughout most of the 17th century, and those who were here typically shared cramped quarters and a servile status with people of European or Native American origins (Morgan 1975; Rountree 1990; Mouer 1991c). Even so, there is emerging evidence of the beginnings of African-American creole culture in the 17th century, particularly in the construction of underground storage structures many archaeologists sometimes indiscriminately call "root cellars."

Small "root cellars" are among the most common African-American "artifacts" excavated by archaeologists in Virginia (and in some other areas of the South which acquired slaves from Virginia). Upon excavating numerous of these small rectangular features at Carter's Grove and Kingsmill, Kelso (1984) concluded that they could be characteristic of slave houses, and slave culture. In recent years, Kelso has revised this idea of "root cellars," per se, as African-American features and has begun instead to stress the assemblages found in the contexts of their fills. While the contents of these features are themselves often fascinating, and prove to illuminate much about African-American life, I feel we should not abandon the "root cellars" themselves as artifacts of a creole culture.

Cellars, that is, underground storage spaces, have a broad and diverse history in both the New and Old Worlds (although it does not appear that they were used by the Contact period Indians of Tidewater Virginia). We can, however, create a sort of typology of "root cellars" in Virginia sites that is enlightening. Seventeenth-century house sites known to have been occupied by English-American colonists often contain moderate-to-large rectangular cellars, of the type known at the time as "butteries" (Figure 11). Butteries were coolers

FIGURE 11. An Early 17th-Century Buttery at Jordan's Journey

FIGURE 12. Structure 17, Jordan's Journey

excavated perhaps 3-6 ft. deep. They tend to be 6 ft. or longer in length, and they are typically centered in a room. Often, they have some type of floor, and, less frequently, sidewalls, to keep moisture and vermin at bay. Butteries were used to store pickled meats, beer, wine, and dairy products. Some may have also served as "dry wells" for storing potatoes, fruits, and other foods. In general, however, dry wells (that is, true root cellars) were often placed just in front of the hearth, to keep them dry. When excavated, butteries or dry wells often contain mostly secondary refuse from the destruction, or post-destruction periods, rather than from occupation. Some, however, contain primary materials, including such items as milk pans, crockery, barrel bands, and other evidence of bulk food storage (Mouer 1991d, 1992; Mouer et al. 1992).

Small post-in-ground or mud-sill houses known, or suspected, to be remains of slave housing have been found to contain a different type of cellar. Sometimes there are dry wells for food storage placed under traps in front of the hearth. More common, however, are a myriad of small, shallow, rectangular pits placed, as often as not, along walls or in corners of the house. Kelso (1984) first suggested that these may have served as personal storage places, or hiding places. Yentsch (1991) has recently found reference to the historical practice among the Ibo for using underground cellars as storage (or hiding) spaces for personal valuables, and Ibo peoples were among the most numerous of Africans in early Virginia (Kulikoff 1986).

Sprinkle (1991) has reported an 18th-century document describing a slave's storage chest that contained the personal belongings of an African-American miller. Some African-American storage cellars were wood-lined or held wooden chests. Sprinkle notes the similarity between the contents of the miller's chest and the contents of some archaeological "root cellars." Ryder (1991a, 1991b) recently excavated a small underground rectangular feature immediately outside of a probable slave cabin on the farmstead of a free black family near Hopewell, Virginia. This cellar may have been wood-lined, and was apparently in use by an African-American woman, Susan Gilliam, into the early 20th century. At my own excavation at Magnolia Grange in Chesterfield County, we uncovered a "root cellar" in the small dependency house of an African-American female servant and healer named Rhodie Goode (Mouer 1992). Goode occupied the house during the 1920s. Her cellar contained the remains of a wooden chest that completely filled the hole in which it was placed, under a corner of the house.

At the fortified settlement at Jordan's Journey we recently uncovered two small earthfast buildings, one of which contained a typical rectangular storage cellar in its northeast corner (Figure 12). These houses were probably destroyed

in the late 1620s, and certainly no later than the mid-1630s. The complex of which these two buildings are a part included five English longhouses which, in 1625, housed William Farrar, his wife Cicely (Jordan) Farrar, their children, and nine servants and/or tenants (Mouer 1990; Mouer and McLearen 1991; Mouer et al. 1992) (Figure 13). These were large structures, at least one of which stood two stories high. All five longhouses were clustered in the southern half of the fort. One of these longhouses had a large buttery cellar in one room, and a detached dependency to a second longhouse had one as well. The two small houses, on the other hand, are at the extreme northern end of the fort. They had been placed in the vicinity of features interpreted as barns and stables, a cattle pen, the communal trash pits, and a probable privy. The symbolism of size and location seem clear. I believe that these were the houses of laboring servants and that the house with the cellar may have been occupied by one or more Africans.

The topic of "race relations" in 17th-century Virginia has been hotly debated among historians for a great many years now. Perhaps the most pressing question needing further elucidation is, "When did race slavery become commonplace?" Much of what we know and think about African-American culture is conditioned by the context of slavery. Given the size and location of these houses, the presence in one of an African-American style cellar, and the pot described above (which was deposited in a trash pit just a few feet from these houses), I believe that this is evidence not only of the presence of African Americans at Jordan's Journey, but, more to the point, of the existence of race slavery and a nascent African-American creole culture in the early 17th century. I am not saying that race slavery was institutionalized and universal at this early date, that is clearly not true, but it existed at Jordan's Journey. The very early "roots" of African-American creole culture as a creole constructed from diverse source materials can be archaeologically demonstrated in Virginia.

Douglas Chambers might disagree. In his response to Sanford's (1991) discussion of "root cellars" and creolization, Chambers (1992) argued that if Ibo used personal storage cellars under the floors of their houses, and if Ibo were prominent among the slave population of Virginia, then the use of underground personal storage cellars in Virginia slave houses was an Ibo, not a creole, behavior. Chambers's Afrocentrist perspective has much to recommend it, but his contentious tone is reminiscent of the debate concerning colonoware pottery and Chesapeake pipes.

Are Virginia's "root cellars" African, pure and simple? It would help if we knew more about underground storage containers in 17th-century West Africa. Were they, for example, round pits in round houses, as compared with Virginia's rectangular pits in rectangular houses? Were the same types of items

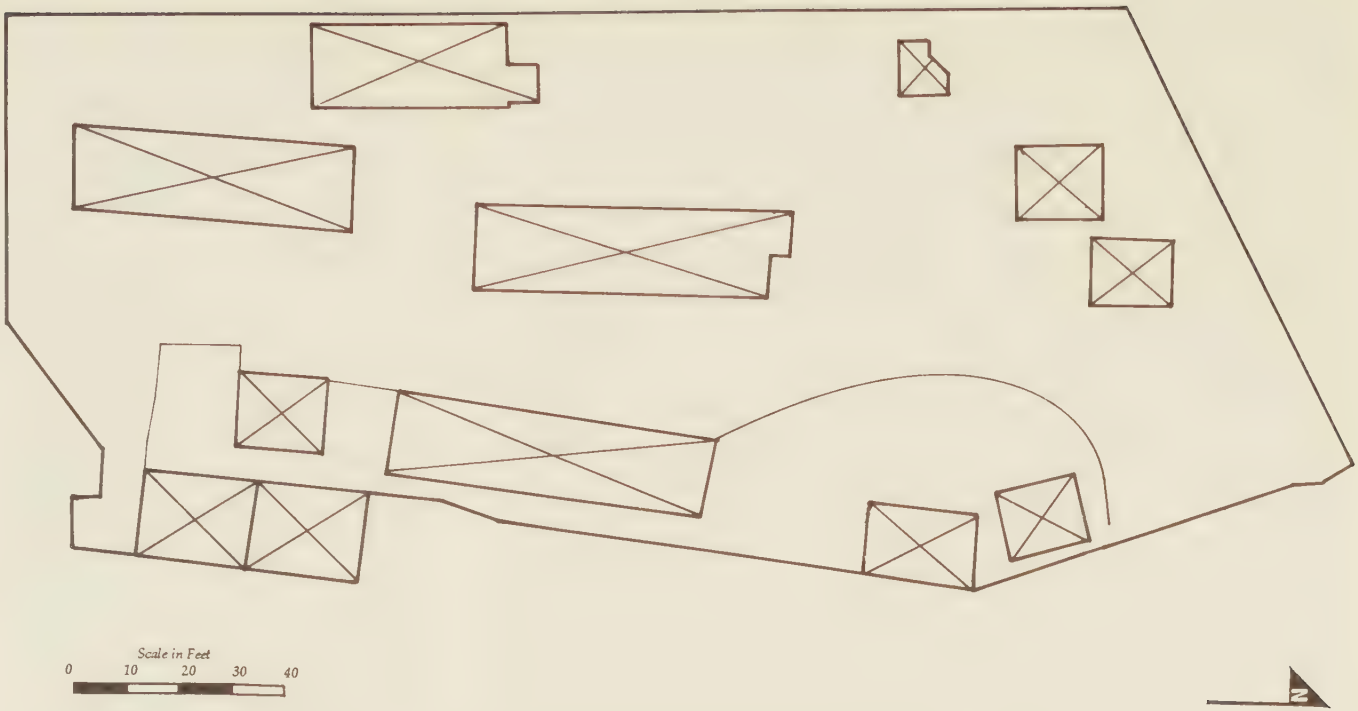

FIGURE 13. Schematic Site Plan of the Fort at Jordan's Journey

stored in African cellars as in those of Virginia, and for the same reasons? Clearly we need more work in this area. But Chambers's is a political point. If I read him correctly, he interprets "creolization" to be similar to the meaning that came to inhere in the term "acculturation." American anthropologists spent far too many years wondering whether an Indian who used a steel ax to do the job he used to do with a stone one was still a "pure" Indian, or an "acculturated," watered-down, version. He seems to accept a colonialist definition of "creole" similar to that of Charles Winick (1972), discussed above.

Chambers seems to object to the notion that African-American culture must be so deeply contextualized with slavery and with New World situations. To deny the many "African" dimensions of Virginia's colonial and contemporary cultures would require flying in the face of overwhelming evidence and sound common sense, but my argument here is that no single life in Colonial Virginia remained unaffected by strange conditions and foreign influences. The difference in the Afrocentric and creole interpretations is one of focus. The former seeks continuities in ethnic identities from Africa, through colonialism and slavery, to the present. It emphasizes the "African" in the African-American construct. The latter stresses context, history, individual action, and the situated negotiation of social reality. It focuses on the "American" — the creole — dimensions of our culture. To my mind, the first approach reinforces destructive concepts of "race" and the power relations that have evolved between races, while the other emphasizes "identity," and the power of individuals and groups to create new worlds. What is truly refreshing in this discourse, which is taking place throughout many fields of scholarship, is that archaeology is in the thick of it.

INCONCLUSIVE CONCLUSIONS

While Indians were adopting European pottery forms, cattle and swine keeping, frame houses, woolen cloaks, and other imported lifeways, the colonial Virginians were adopting Indian pipes, along with fringed buckskin tunics, moccasins, dugout canoes, Indian-built fish dams and weirs, African-Caribbean pepper pot and yam casseroles, and Indian-derived Brunswick stew. In his essay on Chesapeake historiography, Thad Tate (1979) repeatedly notes that historians have overlooked the role of the Indian peoples in early colonial society. Ethnohistorian J. Frederick Fausz (1988:48) has written, "although most historians implicitly recognize that the early English Chesapeake emerged out of the confluence of two alien worlds, recent scholarship has not yet succeeded in restoring Indians to the center stage they occupied in the seventeenth century." Likewise, while African-Americans did not occupy "center stage" until the 18th

century, the profound effects of their early presence are just now being uncovered by the archaeology of Virginia's first century.

It has been my intention in this essay to raise the prospects for a distinctive approach to the culture history of the early Chesapeake. The search for creolization as a process requires a processual understanding of ethnicity (or identity) that goes beyond the essentialist categories of red, white, and black. A semiotic, interpretive, contextual, and critical approach to artifacts and documents can provide insights into the construction of the social realities of our colonial past. I have glossed some very general contexts or nexuses of culture construction, and I have pointed to some general types of evidence in the archaeological, historical, and cultural records that can be interpreted as the products of creolization. What we need now are some very detailed readings of individual artifacts, assemblages, and site histories. If there is any truism about the archaeology of the 17th century in Virginia, it is that it defies generalization. For every pattern there are many exceptions. These exceptions may be the real points of interest. The margins, frontiers, and outliers of normal life were alive with dynamic interactions among strangers compelled to deal with each other. Moments of culture construction occurred in kitchens, in beds, and at trading tables over congenial or contentious transactions. They were sealed in tobacco smoke and celebrated with feasts. Identities of one sort, like armor breastplates and stone arrowheads, were discarded and buried. New identities were created, negotiated, and exchanged as needed. As we learn how to decode the subtleties and complexities of these processes, archaeology may yet prove to be the most valuable tool we have for understanding this "effervescent era." The 17th century still holds many secrets, and that is what makes it so much fun.

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SEVENTEENTH-CENTURY VIRGINIA AND ITS 20TH-CENTURY ARCHAEOLOGISTS

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INTRODUCTION

Few archaeological topics in the United States are more actively pursued than Virginia during the century of its founding. The archaeological study of 17th-century Virginia entered its modern era when the National Park Service undertook excavations at Jamestown Island in the 1930s. Since then, the archaeological investigation of 17th-century sites in Virginia has achieved a reputation for ambitious field efforts whose results have shaped not only historical understanding of early Virginia, but the field of historical archaeology as well (Harrington 1984). The work of J. C. Harrington and John Cotter at Jamestown, and Ivor Noël Hume's later work at Matthew's Manor and a half-dozen other sites in the 1960s, contributed much to the set of methods and analytical intentions historical archaeology adopted as it emerged as a distinct scholarly endeavor during that decade (Harrington 1952, 1954, 1965; Noël Hume 1969a, 1969b). More recent work has confirmed the robust reputation of the archaeology of 17th-century Virginia. Platoons of archaeologists have, during a boom of unprecedented scale and intensity that began about 1970, dusted off bits and pieces of the things that Virginia's earlier generations tore down and threw away (Barka 1976; Kelso 1979; Noël Hume 1982a). Salvage excavations provided the impetus for much of this new vigor, but so too did ambitious research programs sustained by some of the region's museums. Archaeologists

from the Colonial Williamsburg Foundation, the College of William and Mary, the Virginia Research Center for Archaeology, and a number of other organizations in Virginia, and Historic St. Mary's City in Maryland have shoveled and sifted so much that it can truly be said that there are few places in the nation where archaeologists have been busier.

There are many reasons why this is so. Some Virginians are quick to point out that their state occupies a particularly noteworthy position in the history of the nation. Virginia, this argument goes, has a distinguished history, and because it enjoys a certain kind of national primacy (Virginia was the first permanent English settlement, convened America's first representative assembly, and was, of course, home of the first president), it deserves special archaeological attention. There are, to be sure, more compelling reasons. Early Virginia holds great fascination for scholars who seek to understand the founding and unfolding of the American nation. The centrality of Virginia to the history of the nation, far from being simply a tenet of antiquarians and geneaologists, is born out by a burgeoning historical literature which seeks to understand how Old World customs and traditions — Old World culture — reached the New and how, once planted, they evolved into an American amalgam.

THE EARLY YEARS

Historical interest in early Virginia has waxed and waned during the 20th century. Thad Tate's (1979) cogent historiography of 17th-century Virginia and its modern historians revealed that until the 1970s the study of early Virginia was entrusted to a small coterie of professionals and amateurs, who wrote in surges which tended to coincide with historical anniversaries such as the 350th anniversary of the founding of Jamestown. Interestingly, as the tempo of historical research and publication has risen and fallen, so has archaeological activity. The years that preceeded the 300th anniversary of the settlement of Jamestown were, for example, full of popular enthusiasm for Virginia's early history. Popular histories were written for the occasion, there were more than a few commemorative speeches, and eager amateurs clumsily wielded picks and shovels at Jamestown (Yonge 1903; Lindgren n.d.). There was digging elsewhere as well; all of it inept and, apparently, none of it compelling enough to inspire an on-going investigation by either amateurs or professionals. As Jamestown's 300th anniversary year came to an end, the exposition mounted for the celebration at Norfolk closed, and the archaeology of 17th-century Virginia entered a sleep from which it did not emerge for more than a quarter of a century.

The state pavilions built in the "colonial style" at the exposition at Norfolk contributed to an enthusiasm for a new style in architecture that swept the nation. There was, however, no similar enthusiasm for archaeology, and not until 1934 did excavations resume at Jamestown. The revival of archaeology at Jamestown was not, in the strictist sense, inspired by historical interest in the commonwealth's earliest years. Excavations resumed at Jamestown in 1934 after the National Park Service made decisions to study the site of Virginia's first capital and interpret that specific place and its history for the public. Archaeology did not resume because archaeologists developed a set of compelling questions, it followed historical questions and the imperatives of public presentation (Harrington 1984).

It is impossible to imagine the course of archaeology in Virginia without the work that continued at Jamestown until the beginning of World War II. What is clear is that a symbiotic relation bound history and archaeology during Virginia's first great period of 17th-century archaeology, the years from 1934 to 1970. J. C. Harrington directed the combined research programs at Jamestown from 1936 until 1941. Harrington's fieldwork set both a professional standard for archaeology and established an ideal that practitioners still strive to meet. The results of this work were reported, in part, by Henry Chandlee Forman (1938). His book, Jamestown and St. Mary's: Buried Cities of Romance, clearly revealed that archaeological information carefuly gathered was of little use in the hands of scholars ill-equipped to interpret it.

While Harrington earned a reputation for innovation and rigorous standards, his experience at Jamestown also demonstrates how closely the archaeology of 17th-century Virginia was then tied to the careers of a few individuals. When Harrington left Jamestown, his career took him higher and higher in the hierarchy of the National Park Service. This was a career that, in the long run, proved beneficial for archaeology and the role it plays within the Park Service. It was a shift of responsibilities, however, that removed him from direct involvement with Jamestown and the study of early Virginia.

Following World War II and a post-war evaluation of the excavations Harrington and others had completed, the Park Service resuscitated its archaeological program at Jamestown. John Cotter directed the campaigns that stretched from 1954 to 1956 as part of the celebration of the 350th anniversary of Jamestown's founding. Much was uncovered. Among other things, Cotter discovered evidence for an earthfast building, a building type that would later become the object of considerable interest. The excavations ended, however, when enough work had been done so that it could be said that some research had marked the 350th anniversary. Cotter moved on. The work at Jamestown

stopped, and so did aggressive research about the 17th century. Harrington and Cotter's accomplishments at Jamestown were many. But as the archaeology of 17th-century Virginia entered another lull, no one noted that archaeologists had investigated only a few sites beyond Jamestown or that what was known about Virginia's first capital was said to be true for all of 17th-century Virginia (Cotter 1958). Many years passed before flawed intepretations of the results of the pioneers of 17th-century archaeology could be corrected.

For almost two decades following Cotter's departure from Jamestown, archaeology in Virginia focused almost exclusively on the 18th century. Colonial National Historical Park supported excavations on the battlefields at Yorktown, and Colonial Williamsburg continued an archaeological program that had begun in the late 1920s. The latter entered a more active and coherent phase when Ivor Noël Hume assumed its direction in 1957. A steady stream of articles and monographs, most of them about Virginia's 18th-century capital, ensued. While Noël Hume and William Kelso did investigate several important 17th-century sites during the 1960s, notably Mathews Manor (Noël Hume 1966), the Challis Pottery (Noël Hume 1963), and two trash-filled pits at Lightfoot (Kelso 1966, 1967), archaeology during these two decades was, for the most part, fixed on Virginia's second century. Like Harrington's work at Jamestown, these later forays into Virginia's 17th century hinted at what might be discovered. The rewards of further work were, however, not pursued until the early 1970s.

THE "NEW" 17TH-CENTURY ARCHAEOLOGY

In 1970 the archaeology of 17th-century Virginia was on the verge of profound change. As the new decade began, Norman Barka and William Kelso initiated work on two sites whose excavation dramatically changed the face of archaeology in Virginia. Barka's discoveries at Flowerdew Hundred in Prince George County gained coverage in the slick pages of Newsweek. Kelso, working for the Colonial Williamsburg Foundation, completed a survey of Carter's Grove, the large James River estate that contained one of Virginia's great 18th-century houses. Because of Colonial Williamsburg's priorities, the sites he discovered there were not excavated for another half decade. When they were, the sites at Martin's Hundred became some of the most publicly visible archaeology conducted anywhere in the country (Noël Hume 1979, 1982a, 1982b). But before they became famous, the early attention they received led to the discovery of other nearby 17th-century sites that occupied Kelso for the rest of the decade (Kelso 1984).

Barka's work at Flowerdew and Kelso's at Kingsmill changed the face of archaeology in Virginia because it: (1) challenged what was thought to be true about the material culture and architecture of 17th-century Virginia, (2) changed the methods archaeologists working in Virginia used on their sites, and (3) inspired a new archaeological agenda. Where archaeology during the 1950s and 1960s focused almost exclusively on the 18th century, during the 1970s and 1980s, archaeological research in Virginia shifted almost entirely to 17th-century topics. This shift took place not because the 18th century was well understood or because no interesting sites or questions remained to be pursued. Archaeological priorities simply changed.

Establishing archaeological priorities in Virginia hinged on several factors. Scholarly dialogue played a role, but because archaeology in Virginia was, and remains, a decentralized affair, serendipity was just as important. As archaeology in Virginia turned its attention to the 17th century during the 1970s, there were many indications that serendipity as well as a new generation of archaeologists were at work. Noël Hume and Harrington trained some of the senior members of the generation whose work must be seen as a second and distinct phase in the archaeology of 17th-century Virginia. At excavations at Kingsmill and Flowerdew, and later at Martin's Hundred, the Governor's Land, and dozens of other sites, the field crews were quite different from those Harrington and Cotter had directed. The members of this second generation of Virginia archaeologists were, by and large, anthropologically trained. Many were trained at the undergraduate or graduate level in related disciplines, such as folklore, history, architectural history, and geography. Most received a significant part of their training at colleges and universities outside Virginia. The archaeology of the 1970s and later was different because it was more interdisciplinary and because it followed distinctive lines of inquiry other than those laid out 30 or more years before.

THE "GOLDEN AGE" OF VIRGINIA ARCHAEOLOGY

The archaeology of 17th-century sites in the 1970s differed from the archaeology of the 1930s to 1960s in at least two more significant ways. First, field techniques changed as archaeological inquiries expanded from narrowly directed explorations to broader investigations. On one side of 1970 there are trenches and balk grid systems. On this side of 1970, there is open area excavation, Harris matrices, and sampling schemes. In other words, methods changed drastically. This was not a simple matter of becoming more competent. Rather, changes in how data were recovered and recorded reflected new and distinct

assumptions about the nature of archaeological data and the nature of the questions then being asked (King 1988; Miller 1988; Pogue 1988). Similar changes were apparent in other parts of the nation and in other branches of archaeology. While the impact of the so-called "New Archaeology" was not unknown in Virginia, its effect was less dramatic on the theoretical landscape.

One of the hallmarks of the second generation of 17th-century archaeologists was their willingness, and indeed their eagerness, to open large areas. Sometimes they had to. In some salvage situations, the need to uncover as much as possible as quickly as possible dictated open area excavation as the most expedient method to excavate and record site plans. Salvage excavations became more and more frequent during the late 1970s, and power equipment became a standard part of field method repetoires. The second generation has eschewed taking small, timid, tentative peeks at their sites. They have embraced instead a set of methods that allows analysis of broad spatial relationships. Stripping large areas, whether by hand or by machine, has allowed the second generation to examine larger areas and dispersed site complexes. One has only to compare William Kelso's first unit of analysis, the trash pits he excavated at Lightfoot in the mid-1960s, with the farmstead, the standard unit of analysis for his work at Kingsmill, to understand the analytical possibilities unleashed by the adoption of large area excavation. Forts and fortified settlements emerged as a serious topic because Barka, Noël Hume, Nicholas Luccketti, and others had the audacity to look at large areas. What was learned about settlement patterns, yard arrangements, and plantation landscapes was possible because Fraser Neiman at the Clifts (Neiman 1978) and Gary Stone and his team at St. Mary's City (Stone 1974; Keeler 1978) excavated entire complexes. During the 1970s it became possible to discuss yard arrangements, farmsteads, field enclosures, gardens, and a wide range of spatial issues because archaeologists removed the blinkers the older set of field methods imposed and expanded the archaeological canvases on which they worked.

A second hallmark of the archaeology that followed 1970 was the nature of the questions archaeologists pursued. In general, the goal of 17th-century archaeology shifted from the acquisition of information toward finding answers to broad ethnographic questions. As good as Harrington and Cotter's work was at Jamestown, it rarely rose above the level of description. Noël Hume's Here Lies Virginia (1963) and A Guide to Artifacts of Colonial America (1969a) were both indispensible, but both addressed questions of chronology and typology. Broader questions about the cultural role of artifacts and the meaning of things archaeologists find was reserved for another time.

In the preface to a paper edition of Historical Archaeology, Noël Hume (1969b:1) revealed his preference for an archaeology whose goal was to "seek knowledge about one place, one man, or one moment," an approach that Stanley South, in a book which initiated a theoretical brawl within historical archaeology, labeled "particularistic" (South 1977). Most of the second generation of 17th-century archaeologists agreed with Noël Hume that historical archaeology is "a tool with which to dig out information to enlarge, focus and define historical perspectives." They generally disagreed, however, with Noël Hume's (1969b:2) summary assessment that archaeology "is the servant of the historian." The work of the second generation suggested that the purposes of the archaeology of 17th-century Virginia was no longer simply to provide facts that documents could not. Archaeology was no longer, as was once suggested, a "handmaiden" to history (Noël Hume 1964). It emerged in the 1970s as an analytical tool that could not only recover what, as far as the documentary record was concerned, was unknown or unknowable, it could delineate and explain the cultural processes that had shaped early Virginia.

Within the second generation of 17th-century archaeologists, however, differences in theoretical orientation did appear. The younger generation proved its willingness to appropriate the perspectives and methods of other disciplines when it could. Statistical analysis made a few modest inroads, and the assistance of specialists from other disciplines was sought to solve problems that the archaeologists could not themselves (Aufderheide et al. 1981).

Much of the archaeology of 17th-century Virginia has focused on the excavation of domestic complexes. In uncovering the ground plans of dozens of dwellings and farmsteads, Chesapeake archaeologists have done their best work. Almost as soon as they started their work at Flowerdew and Kingsmill, Norman Barka and William Kelso learned that every building they discovered was of the timber-framed "post hole" or "earthfast" type. These were not the first glimpses of earthfast architecture (Noël Hume 1966; Buchanan and Heite 1971), but only as reports trickled in from sites throughout tidewater Virginia and Maryland did it become apparent that earthfast construction had dominated 17th-century building. This discovery, the best-known example of the contributions archaeological research has made to the study of early Virginia, necessitated a thorough evaluation and reinterpretation of 17th-century architecture (Billings 1975). Progress toward a first summary of the archaeological evidence for 17th-century architecture was made on a day in the fall of 1976 when historian Cary Carson pinned dozens of floor plans of excavated structures to the wall of a barn at Bacon's Castle. Carson and the archaeologists assembled that day hoped that some sort of pattern would emerge. None did, but in the years that followed the

analysis of patterns of post holes remained at the center of efforts to understand the character of life in the early Chesapeake and the cultural processes which shaped it (Carson et al. 1981). More than any other aspect of the archaeological discoveries of the last two decades, the recovery and interpretation of architectural patterns has revised historical understanding of the transference of English traditions to the Chesapeake and their transformation during the 17th and 18th centuries (Neiman 1978).

Many things contributed to archaeology's vigor in the 1970s and 1980s. First, there was more money for archaeology than there had been ever before. Increased funding for archaeology came from federal grants, from private foundations, and from monies that flowed into review and compliance programs mandated by the National Historic Preservation Act of 1966. This last source would later inspire an exponential growth in archaeological activity of all kinds, but grant funds supported the most ambitious and most productive projects. The National Endowment for the Humanities, for example, supported excavation at the Governor's Land and at Richneck Plantation. Funds from the Lilley Foundation sustained Fraser Neiman's work at the Clift's Plantation, and National Geographic financed Noël Hume's excavations at Martin's Hundred. By the yardstick of dollars, the 1970s were truly archaeology's "golden age."

Second, more than money was involved. All the dollars made it possible for archaeologists to sustain more large-scale research projects than at any time before or since. The pace of excavation during the 1970s increased as money made it possible for more archaeologists to work on more sites, but much of the activity was propelled by vigorous competition between organizations. There was a sense in the mid-1970s that 17th-century research was at the cutting edge. Not to be involved was to risk being left behind.

Third, the historical study of 17th-century Virginia was then in one of its "up" cycles. The new scholarship stemmed from renewed interest in the 17th-century Chesapeake. A younger generation of graduate students applied the techniques of the "new social history" to Virginia's largely unexplored and unexploited 17th-century county court records (Tate 1979). The occasions when the work of archaeologists illuminated the work of historians remained few and infrequent, however. Gloria Main (1982), for example, used none of the studies completed by archaeologists who worked for Historic St. Mary's City in her study of standards of living in 17th-century Maryland. It is nevertheless clear that the vitality and innovation that characterized historical research inspired more digging. Edmund Morgan's American Slavery, American Freedom (1975) suggested to many archaeologists that there were mysteries to be solved that only they could answer. What was the nature of life in the early Chesapeake? The

glimpses of houses and everyday life that archaeology provided by the time American Slavery, American Freedom was published in 1975 was, it seemed, confirmation that archaeology indeed had a role to play. Museums in the Chesapeake, notably Historic St. Mary's City, and the work of material culture specialists supported the proposition that Americans have more often expressed their hopes and aspirations in the things they used and the places they lived than in what they wrote (Carson 1978).

The 1970s were heady times for archaeologists working on 17th-century sites in Virginia. Funding flowed more freely then than it ever had. As work on new sites expanded, it was also evident that good questions to pursue were plentiful. To be an archaeologist in a colony fabled for the sparseness of its documentary record was good indeed. It seemed that every site was different. Every pit and feature yielded artifacts not previously seen. For a time it seemed that no patterns in the plans of homelots, floorplans, or artifact use would ever emerge. A sense of discovery animates all archaeology, but to be a part of the work that began about 1970 was to be part of some of the most exciting archaeological research yet conducted in America. The discovery that earthfast construction techniques dominated the early Chesapeake ranks as one of the most significant contributions of archaeological research to American social and cultural history (Carson et al. 1981).

BACK TO THE FUTURE

In a paper he read some 30 years ago at a meeting of the American Anthropological Association, J. C. Harrington assessed the work of archaeologists whose research focused on North American sites occupied during the 17th to 19th centuries by European and African immigrants and their progeny. Harrington, then busy with a burgeoning list of responsibilities within the National Park System, was aware that the study of early American history and culture was entering a more intense and vigorous phase. Archaeological activity had also increased in tempo in the years that followed World War II, but it remained unclear to Harrington what archaeology had contributed or would contribute to the resurgent study of America's earliest generations. He and his archaeological colleagues, to be sure, were convinced that what they were doing was important; certainly, the results of dozens of excavations across the country had increased the ability of archaeologists and historians to describe and recreate the landscapes, cityscapes, and homescapes of early America. Still, Harrington admitted that archaeology's contribution to the study of early America was, to that point, "historical data," not history. The bits and pieces of things Americans

had thrown away, things which archaeologists painstakingly recovered, afforded "a special kind of historical record, but in themselves they do not constitute history" (Harrington 1978:6).

During the last 20 years, archaeologists have boasted that they have contributed to the study of Virginia's first decades. They have, however, often failed to tell our historical brothers and sisters which of the things they found are important and which are not (Whittenburg 1987). Further, archaeologists have often failed to publish the results of their research, or when they have, it has been in reports so obscure that they are, in Ivor Noël Hume's apt phrase, known only to nimble-footed silverfish. Busy and innovative, Virginia's archaeologists have also created a vast "gray" literature (cf. Smolek, Pogue, and Clark 1984).

The pursuit of the 17th century is still so young that its archaeologists have not yet given themselves the freedom to think historically, to think critically, about what they have done. Answers to many of our questions lie in some of that undigested data that, like the sites that will be excavated in the next two decades, will bear the mark of the next generation, the third modern generation that is just now turning its attention to the 17th century.

What will this third generation of 17th-century archaeologists accomplish? There seems little doubt that many of them will cut their teeth, and mature, "in the trenches." Many of them will, because the clank of the bulldozer continues to shatter the silence of long-plowed fields, spend considerable portions of their early careers working on salvage projects. Cultural resources management will be the most pressing concern many of this third generation face. But there will be more important matters. It seems likely that the National Park Service will again, after nearly a half century of ignoring its archaeological responsibilities, sponsor research at Jamestown. Predictably, the next phase of archaeology at Jamestown will coincide with the celebration of the town's 400th anniversary.

It may be that the new work at Jamestown will provide the impetus for 17th-century archaeologists to find solutions for some of the problems the second generation did not address. The occasion of the 400th anniversary of the founding of Jamestown may be the right occasion for a summary interpretation of the data archaeologists have gathered since 1970. There is a need for a careful analysis of almost every aspect of 17th-century Virginia archaeology. The colony's impermanent architecture provides a glimpse of what is needed. Even though Virginia's early buildings are among the best-recorded, and most-discussed manifestations of 17th-century culture, no compelling explanation has been offered for how ground plans evolved, why colonists made the choices they did, or even why the technique of earthfast construction prevailed so widely and

for so long a time. It is likely that the second generation will tackle these questions, but they will do so as the third generation contributes additional information and poses sharp questions about the meaning of postholes.

The third generation will also face the limitation of the data collected by their predecessors. Even though the need for summary interpretations will be keen, the archaeologists who attempt them will discover that wide variation in the field methods and in the recording of field data employed in the 1970s and 1980s will make this task dificult. There are mountains of data to analyze, potential grist for dozens of graduate school theses and dissertations, articles and books. Before they can be written, the third generation will find ways to smooth the data, and, when they do, there will emerge early in Virginia's fifth century a far better understanding of Virginia's first century than might have been obtained by using manuscripts or artifacts alone.

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PRIVATE FORTIFICATIONS IN 17TH-CENTURY VIRGINIA: A STUDY OF SIX REPRESENTATIVE WORKS

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INTRODUCTION

This study will examine how selected private planters attempted to secure their farmsteads from both Native American and European rivals at a time when the very survival of English settlement in Virginia was in question. The Anglo-American settlement of the Chesapeake was boldly intrusive, competitive, and marked with ethnocentrism. Therefore, the English settlers and Native Americans rapidly entered into a relationship punctuated by open hostility. Conflicting world views, combined with competition for land and food, contributed to intensified aggression during the Anglo-Powhatan Wars of 1609 to 1614, 1622 to 1627, and 1644 to 1645, and during the Susquehannock raid of 1675-1676 (Fausz 1990). In addition, because the English claim to North America was in competition with other European rivals, including Spain, France, and Holland, even on some private plantations an international military posture had to be maintained along the coastal highways. This was especially true during the precarious toehold of the Virginia Company period (1607-1624).

The rarity of military features in the archaeological record of the 17th-century Chesapeake has severely limited the data base, making it difficult for regional scholars to interpret or compare their evidence. With the exception of Jamestown Fort, few written descriptions of defensive works survive in the colonial records. This makes archaeological examination literally the only

possible method to investigate the nature of such works. Even so, archaeology often poses as many questions as it answers, since fortification often relies on some elevated components that normally do not survive below ground.

These defensive works were built within frontier contexts, and this period of maximum cultural adjustment is of great interest to scholars of the early Chesapeake. What, if any, were the regional adaptations to private defense, and what specific defensive traditions informed this behavior? In addition, because private fortifications enclosed immigrants in a domestic context, they might provide insights not only into military efforts in the colony, but into social and economic conditions as well.

This paper will attempt to identify and explicate military improvements within the often confusing sea of post holes and trenches comprising the "organic," informal, and often ambiguous 17th-century domestic homelot (Deetz 1977:39-43, 108-109). If remains such as hearths and chimney posts help regional scholars to identify a domestic structure (Carson et al. 1981), what are the distinctive characteristics of a fortification in an area known for its insubstantial architecture? As an introduction, this work will utilize the most fundamental distinctive design manifestations of the 360-degree Renaissance enfilade to identify examples of private fortification (Hale 1961).

The archaeological works discussed below meet the technical definition of the term "fort, a detached stronghold with provisions for flank defense" (Ramm et al. 1964:101). One of the characteristic traits of New World adaptation was an accelerated accommodation to the use of gunpowder projectile weapons. This was manifested mainly in reaction to the threat of foreign warships, which were virtually floating batteries and arsenals. An additional threat was the long-range effectiveness of Native American bowmen. These offensive weapons dictated defensive design (Jester and Hiden 1956:5-64; Peterson 1956:7-101; Dupuy and Dupuy 1970:522-533; Norman and Pottinger 1979:190-192, 206-208; Hogg 1981:100). In short, this critical defensive preoccupation, coupling fortification design with defensive weapons, will be referred to as the "Gunpowder Revolution" in defensive design.

Because, for one reason or another, there is little in the published literature pertaining to private fortification, five archaeological sites and a set of graphic depictions inferred to represent the development of one domestic structure into a fortified house will be carefully examined. These particular data illustrate how the English borrowed the technology of Renaissance forts, and other models in defensive design, in developing private fortifications in the New World theater (Simpson 1966; Ramm et al. 1970:61-73; Duffy 1979:1-22; Hogg 1981:96-108; Stell 1981:37-49; Johnson 1989:111-121).

THE ARCHAEOLOGICAL DATA BASE: FORTIFIED BAWNS

Since the word "bawn" does not appear in any colonial document, it must be described as a refinement of the most commonly used word, "fort," and be distinguished from a palisaded plantation. In Ireland, the indigenous Gaelic population enclosed their cattle against wolves during migratory encampments, and enclosed themselves and their cattle during times of anticipated conflict, within the bo-dhainan or badhun, or, literally, "cattle fortress." The defenses are described as trenches and banks surmounted with stout stakes, or often thorny brush, creating "hedges" of light wood (Hill 1970:82). That some Ulster English may have employed the Gaelic system is suggested by descriptions such as that of one Mrs. Lindsey, who constructed, "a good strong bawne of Earth, with a Quick-set Hedge upon it, and a ditch about it" (Hill 1970:549). Mrs. Lindsey's "hedge" was probably a light ditch-set stockade described in somewhat misleading yeoman language.

After the English defeated the Irish military forces in 1601, their settlements in Ulster were prescribed to consist of small fortified manorial seats or larger fortified towns, which placed domestic improvements within military shells (Camblin 1951:19; Leask 1977:137). Based on relatively extensive contemporary documentary evidence preserved by Pynar (Hill 1970:455-589) and Raven (St. George 1990), the best of these works were elevated to modestly respectable fortifications, consisting of curtain walls mounted with at least two flankers — bastion-like firing platforms — that often linked up with fortified houses. These works typically met the technical military requirements of the word "fort," yet contained prepared courtyards into which the English could drive their cattle at night (Camblin 1951:1-56; Reps 1972:11-20; Noël Hume 1991:237).

In a document roughly analogous to the Virginia muster of 1624/1625, Pynar's Plantation Survey of 1619 characteristically records domestic units separately from the curtains and flankers. A plantation manor, with an associated open court, typically would include "a bawne about it" — that is, built around it (Hill 1970:82). Therefore, a bawn was a defensible homelot wall on smaller plantations, as well as a military and civic wall encircling larger plantation towns. In a larger sense, Dale's impaled landscape at Henricus in 1611 and the trans-peninsula palisade of 1632-1646 are ingeniously broad applications of larger civic bawn curtain ideals (Hening 1823:140, 153; Hatch 1957:51). Returning to the less ambitious works, the English yeoman croft — or animal paddock, and what Chesapeake scholars refer to as a service yard — became hybridized into a Renaissance courtyard. This was in compliance with the logic of the

Gunpowder Revolution in defensive design, the wisdom of Gaelic cattle protection against predators and rustlers, and a desire to retain a safe outdoor work area.

From the above, it seems reasonable to suggest that in order for a settlement to qualify as a fortified bawn, three essential characteristics are necessary: (1) a manor house; (2) recognizable military embellishments indicated by provisions for a 360-degree enfilade; and (3) a respectably large open area, which can be described as a courtyard and is integral to the defensive curtains.

With the exception of a few members of the social elite and military veterans, respectively, both neo-classical courtyards and military architecture were probably alien to most settlers. In addition, at the frontier stage it was difficult to build anything more than a modestly serviceable domestic complex (Carson et al. 1981). Thus, these requirements were a tall order for homesteaders in both Ireland and the Chesapeake. In Ulster, we should not be surprised to find that, except for a handful of urban areas that had a commercial momentum of their own, most plantation bawns failed by the time of the Gaelic rebellion of 1641, and many were never completed (Camblin 1951:19). In Virginia, only two sites have been found to date that meet all the above criteria. These are the Flowerdew Hundred tobacco bawn and Harbor View Fort. The Clifts Plantation and the Hallowes dwelling more accurately may be described as fortified houses.

PLANTATION DEFENSES AT FLOWERDEW

Due largely to an initial series of spectacular archaeological finds, discovered and promoted by Leverette Gregory from 1969 to 1975, and with sustained financial support from land owner David Harrison, the College of William and Mary (1972-1979) and the University of California (1980-1992) have conducted extensive research at Flowerdew Hundred Plantation. Flowerdew is located on the south side of a strategic double bend in the James River, in Prince George County, about halfway between Richmond and Jamestown (Figure 1A). Flowerdew was originally a private, or "particular," plantation owned by Sir George Yeardley from 1618 to 1624. In addition to serving twice as Governor of Virginia (1618-1621 and 1626-1627), Yeardley was a titled knight and the ranking survivor of the old military regime that controlled Virginia from 1608 to 1618. He also was a veteran of the 80 Years War in Flanders, having fought in the service of Maurice of Nassau (Jester and Hiden 1956:375-379; Shea 1983:14-24). Flowerdew was one of eight plantation strongholds held by the Virginia Company at the time of the Massacre of 1622. A detailed study by

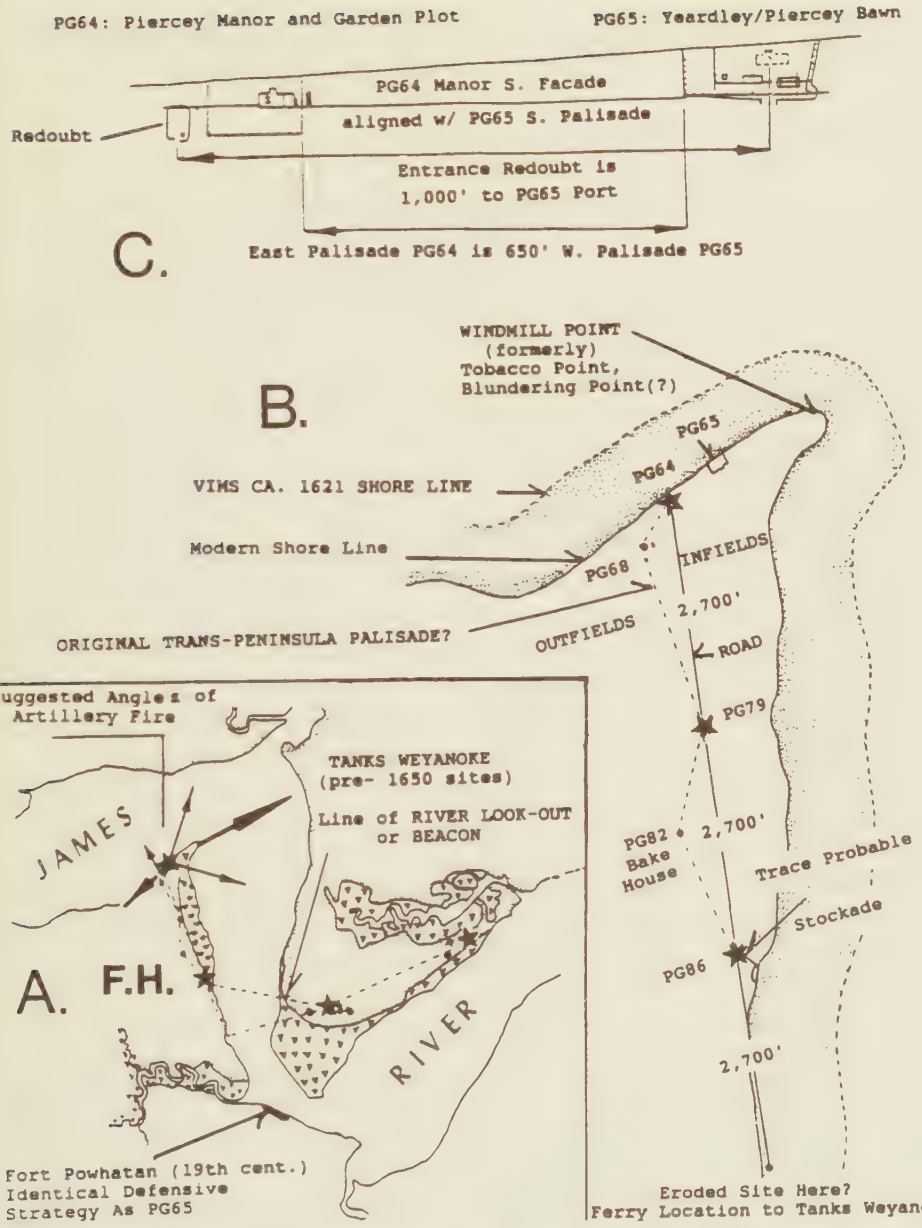

FIGURE 1. A. Sites Before 1650 at Flowerdew Hundred and Tanks Weyanoke, B. Layout of Early Flowerdew Sites, and C. Relationship of 44PG65 to 44PG64.

Fausz (1977:385-386) suggests that it was defended by "decisive military action," resulting in the loss of only six settlers (Kingsbury 1933:568-569, 612).

The Yeardley/Piercey Tobacco Bawn (44PG65)

This site (Figure 2), heretofore known as the "Enclosed Settlement," was excavated periodically from 1972 to 1978 by Southside Historic Sites, an organization at the time affiliated with the College of William and Mary, under the direction of Norman Barka. Of all the early settlements at Flowerdew, 44PG65 is situated closest to the strategic narrow constriction of the Windmill Point peninsula on the south shore of the James (Figure 1B). Based on tobacco pipe and ceramic data, the site appears to have been occupied from ca. 1618 to 1667. Despite this wide span of occupation, an examination of the site's structure and extensive military remains suggests that the greatest part of the settlement was built between 1621 and 1623. This was either in anticipation of the outbreak of hostilities with the Powhatan chiefdom or in immediate reaction to the Massacre of 1622 (Rountree 1990:68-73). No other historic context can convincingly explain the remains described below. For instance, by at least 1623 Flowerdew is documented to have had six cannon, mounted and serviceable, which were on the property of Sir George Yeardley (Kingsbury 1906 2:381-385). Remarkably, cannon shot in six sizes were excavated at 44PG65: eight demi-culverns, three sakers, three minions, one falcon, one falconet, and one robinet.

The domestic core of the settlement will be described before its defensive shell, since what is being protected is crucial to understanding the nature of the system of fortification. The strategic site location, on the shore of the James River, means that it has been very vulnerable to erosion. Between one-third and two-fifths of the original total area is estimated to have been destroyed. The surviving site limits are defined by a ditch-set stockade, 238 x 80 ft. in dimension.

Three substantial buildings are located within the settlement. Structure 1 is a dwelling with a hearth, and a byre, inferred to be a quarter, added at a later date. Opposite Structure 1 is Structure 2, interpreted as a warehouse, workhouse, and quarter, with huge end-wall storage bays or chimneys added to a 32-ft.-long main core (Carson et al. 1981:149, 152). Structure 3 is interpreted as the remains of a high status tenement, although its principal identifiable remains are limited to the base of a hearth. This hearth is made of dry-laid bricks, surmounting a daubed quartzite cobble footing, within a zone of kitchen midden and concentrations of roofing tiles. The structure was severely eroded and intruded by modern trees, and as a result the footprint of the building is

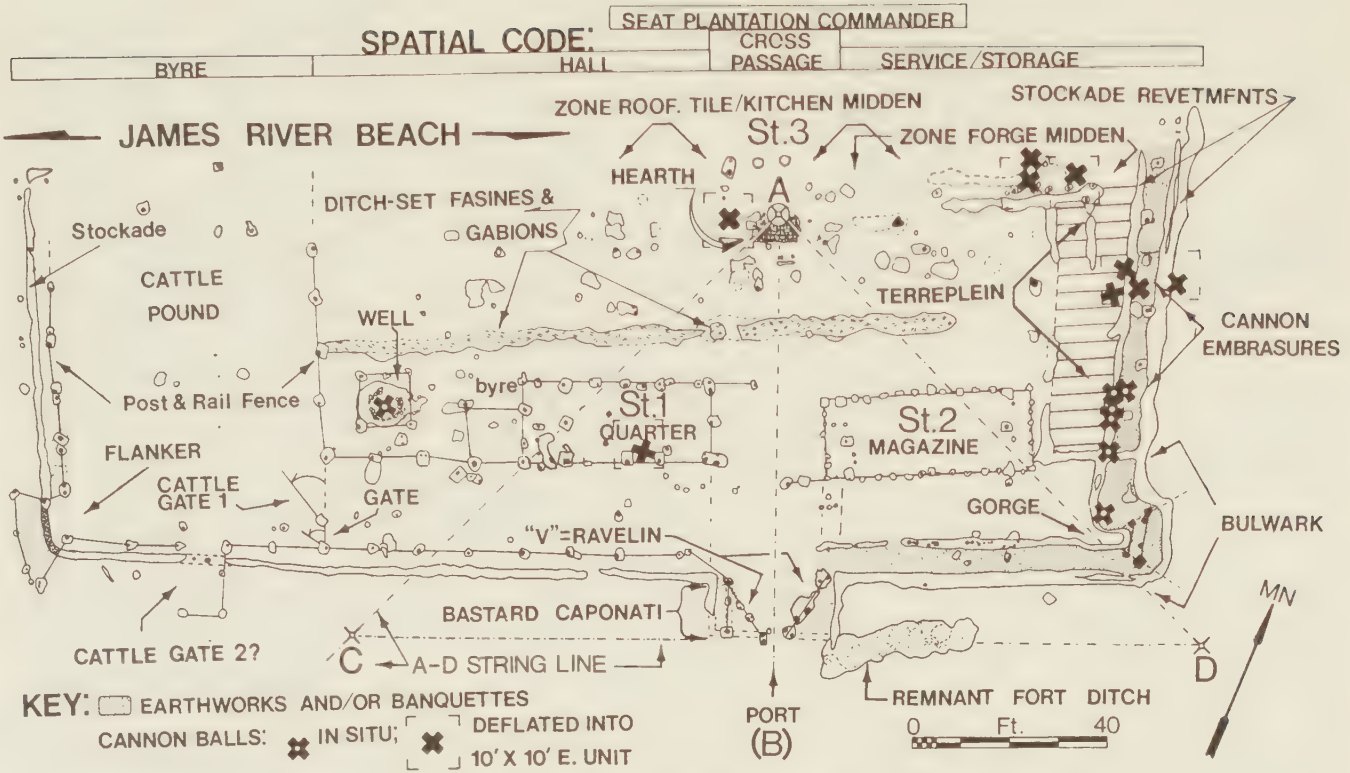

FIGURE 2. Simplified Plan of 44PG65, the Yeardley/Piercey Bawn

somewhat indistinct. It is interpreted as having a lobbied entrance and a central hearth. The structure itself was primarily founded on a ground sill or block foundation. The general building type is well represented in Ulster plantations (Robinson 1983:51-53; Nicholas Brannon 1992, pers. comm.), and the distinctive hearth construction and roofing tiles are superficially reminiscent of the Stone Foundation House at 44PG64 (Barka 1976).

All three structures cluster to the east of a 54-x-80-ft. hole-set internal enclosure. Barka has suggested that this open zone was a livestock enclosure or "cattle pound" (Brain et al. 1976:140-141), probably indicating that the larger peninsula was not yet railed in when the site was planned. A well and well house with a windlass was installed between the cattle pound and the Structure 1 byre, conveniently providing drinking water for both man and beast.

The majority of the site was mechanically stripped, except along the tree lined shore, making it difficult to trace the development of the compound over time. Yet close examination of the features, and of their relationships one to another, reveals that the settlement developed according to a balanced domestic, commercial, and defensive master plan (Hodges 1987).

The core buildings and defenses were apparently laid out simultaneously, using string lines and following the form of an equilateral triangle (Figure 2A-D). With the point of the right-angle anchored at the edge of the center of the hearth (A) in Structure 3, the legs extend in lines falling across the southwest corner post of Structure 1, and the southeast corner post of Structure 2. The hypotenuse of the triangle is formed by a line along the limit of the bulwark's southeast flank between its intersections with the legs (C and D). This line also marks the fortification ditch. The triangle is bisected by another line, starting at the intersection of the hypotenuse with the center of the entry port to the stockade (B), connecting with the hearth (A).

This simple geometric layout could easily have been formed by laying out string lines. The hypothesis that the fortification and buildings are contemporaneous is supported by the regularity of the plan. The east gable of Structure 1 is aligned with the west gable of Structure 2, which are perpendicular to the projecting fortified entrance. The gate, in turn, is aligned with the lobby entrance of Structure 3, forming a line running between Structures 1 and 2.

The overall design may be intended to define an authoritarian social order, with Structure 3 serving as the focal point of the whole. In addition to serving as a tenement, Structure 3 probably acted as a surrogate church and meeting house (Hening 1809:122-123) (Figure 3, top left). As if to further underscore social and functional separations within the settlement, a long linear feature running between Structures 1 and 2 and Structure 3 further subdivides the

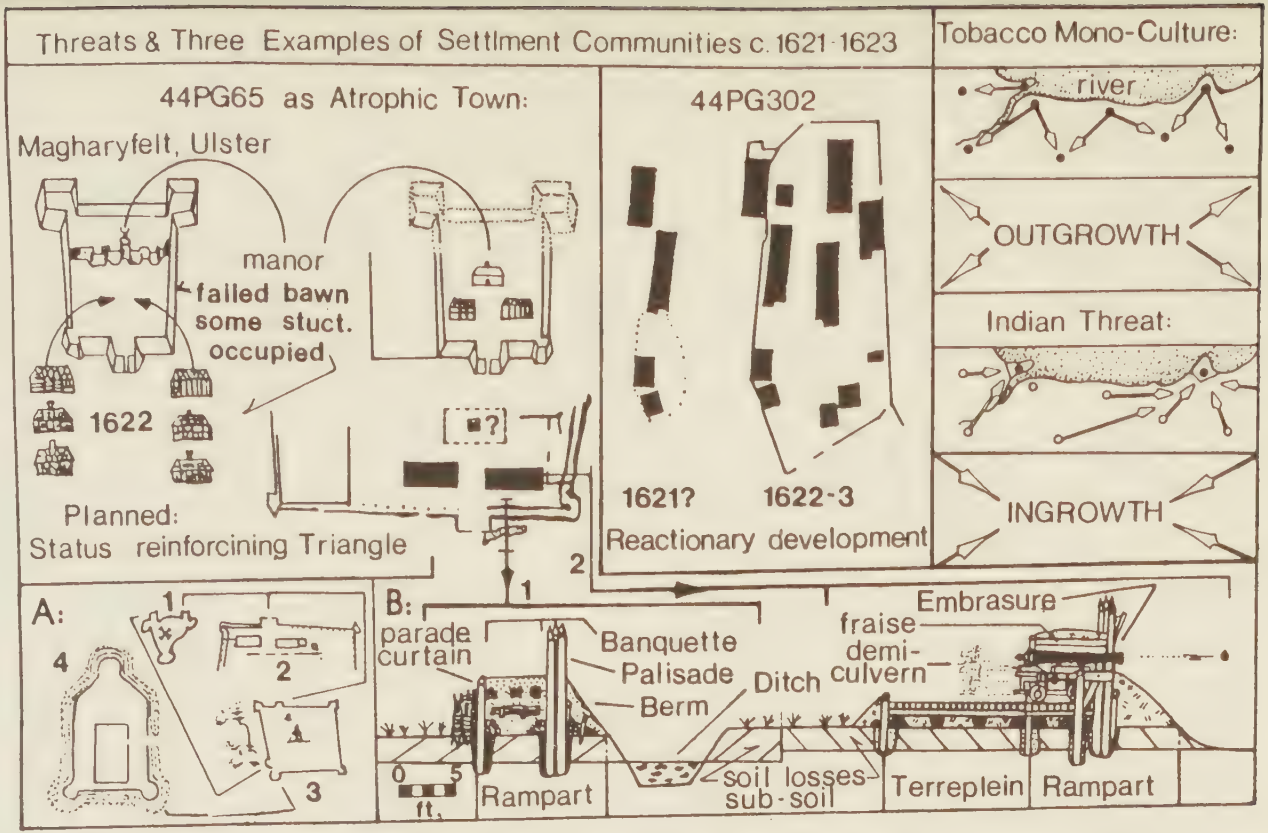

FIGURE 3. Top left, Magherafelt (Camblin 1951); top center, Jordan's Journey (Courtesy of Virginia Commonwealth Universtiy). A.1. James Fort (Brown 1890), 2. 44PG65, 3. Kinsale Fort (Silke 1970), 4. Pope's Fort (Miller 1986); B. Conjectural Reconstruction of 44PG65: 1. Rampart (Wagner 1979), 2. Terreplein (Vauban 1968).

compound (Barka 1975:4-5). To the south of this line, the settlement is organized as an oversized west English long house surmounted by a manor. The elements of this plan include (from west to east): the cattle pound, functioning as a byre; the Structure 1 quarter, functioning as a communal hall; the passage from the fortified gate to the Structure 3 hearth, functioning as a cross passage; and the Structure 2 warehouse, functioning as a service or store room (Beresford and Hurst 1971:Figure 19B).

The ideals of this simple triangular symbolism have been repeated at numerous sites in different ways, including at Jamestown and Henricus in Virginia (Reps 1972:33; McCartney 1980:11). Flowerdew's humble offering of triangular planning, nonetheless, is more directly similar to the spatial ideal of manors centered in relation to the bilinear town layout. Examples of such plans, bisected by a central street, are Magherafelt and Moneymore in Ulster, Ireland (Camblin 1951:Plate 12), and Montreal in French Canada (Reps 1972:Figure 15; Cumming et al. 1974:42) (Figure 3, top left).

An account from 1622-23 notes that while most Virginia plantations had "no other artificial Fortifications then Pallisadoes...divers of them hath Trenches" (Kingsbury 1906 2:381-385). The Flowerdew tobacco bawn incorporates both a palisade with an associated earthwork and trenches, as well as a less substantial ditch-set stockade. The more extensive works are confined to the east of the fortified gate, with the stockade to the west. This dichotomy likely represents the dual preoccupations of defence required after the unsettling events of the Massacre of 1622. On the one hand is the earthen rampart, amounting to half of a bastioned fort, which protected artillery positioned to guard the stretch of the James River around Windmill Point against cannon fire from sailing vessels. To the west, a shallower ditch-set stockade, or "quick-set" hedge, defended the settlement from land assault by Native Americans (Hodges 1987).

Due to erosion caused by floodwaters from the James River, all that remains of the eastern ramparts are the two parallel trenches, averaging 8 ft. apart, designed to anchor the wooden revetments that supported the rampart. This 8-ft. dimension conforms to specifications required by the "Isle Of Wight Orders," issued during the threat of the Spanish Armada in 1588 (Boynton 1967:131). The only surviving remnant of the original fortification ditch is indicated by a third trench, 5 to 7 ft. wide and 33.5 ft. long, located immediately to the east of the fortified gate. Given the high water table at the site, this feature may have been intended as a wet ditch. If so, this could reflect strong Dutch fortification influences, probably as a result of Yeardley's continental experience (Duffy 1979:91-93).

Since the bawn gate's protruding east stockade intrudes the fort ditch, this suggests a predictable sequence of construction. The inner stockade revetment, or parade curtain, was installed first. This consisted of a ditch-set single pale of young trees, averaging between 0.6 and 0.9 ft. in diameter. Earth from digging the fortification ditch was thrown against the inner stockade, which probably extended above ground no more than 4 ft. The presence of peculiar black organic deposits in the fort ditch suggests that the fill was "close beaten" and "manured" with refuse from the cattle pound (cf. Boynton 1967:131). In order to revet the exterior of the earthwork, a double or treble-paled stockade trench up to 5 ft. wide was installed. Based on Strachey's accounts, the exterior "pale" may well have risen to 10 ft. above ground in order to forestall assault, although the posts were probably as much as 14 ft. long (Purchas 1625:1753). Much of the interior top of the rampart was flattened into a "banquette" or firing step. The fort ditch is sufficiently distant from the exterior stockade revetments to suggest that even more fill was thrown against it to form a berm.

The resulting rampart system may be similar to one erected by William Bromlow for his bawn in Ulster. It consisted of, "a Strong Bawne of Timber and Earth, with a Pallazado about it" (Hill 1970:557). The link with Ulster may easily be overstated, however, as the general design is identical to one of several textbook methods used in the 30 Years War of 1618-1648 (Wagner 1979:225) (Figure 3, B1).

In order to house elevated light cannon, a more or less half-moon-shaped bulwark was installed at the southeast corner (Purchas 1625:1753; Tyler 1907:19). Among the contemporary English, "bulwark" and "bastion" are terms that were used almost synonymously, except that bulwark often implied an association with artillery (Ramm et al. 1964:101). Although the feature appears to be a demi-bastion (a bastion with only one flank angle), close inspection of the curvilinear builders trench reveals that this work was probably formed of two opposing straight bastion "flanks" (sides), 10 ft. long, joined by a straight bastion "face" (outward projection), 12 ft. long, with only a poorly defined 2 to 3-ft. projection flanking the south wall. This is an example of typical English simplification of the formal Renaissance arrow-shaped bastion, found repeated at the southern bulwark at Fort Raleigh, North Carolina (Harrington 1984:8), at Jamestown (Brown 1890:184-185), and at Pope's Fort at St. Maries City, Maryland (Miller 1986:47-67) (Figure 3, A4).

Because the exterior bulwark walls were straight, horizontal runners could have been installed to strengthen the exterior stockade. In order to provide a ramp, or "gorge," leading into the raised bulwark from the interior ground level settlement, a progressively tighter inward loop in the parade curtain was

formed the higher the posts went (Hogg 1981:251). Five posts installed within the bulwark prior to earthwork infilling provided additional internal support for the light ordnance thought to have been mounted there.

Based on the evidence provided by the distribution of the cannon balls, larger cannon, including demi-culverins weighing 3,400 pounds each, were mounted on a specialized, enlarged banquette (Stone 1961:162). This was called a cannon "mount" or "platform" by the contemporary English, but is more properly known as a terreplein (Arber 1910 II:624; Hogg 1981:251). This feature is indicated by a framed rectangular expansion of the parade curtain, 12 x 50 ft. long, along the east fortification wall and parallel to the stockade revetments. This improvement both supported the heavy ordnance and allowed space for recoil and reloading (Figure 3, B2). Previously, Barka (Brain et al. 1976:132, 141-142) interpreted this area adjacent to Structure 2 as a "wharf to river," implying a corduroy ramp of log molds or "sleepers" leading to the water (Carson et al. 1981:152). This interpretation does not appear credible, given that, according to the Virginia Institute of Marine Science, the river shoreline in 1621 was approximately 371 ft. from the modern shoreline (Byrne and Anderson 1977:47) (Figure 1B). Barka's argument that Structure 2 had a direct relationship with the terreplein seems more likely, however. Given its proximity to the terreplein, Structure 2 could have served as a magazine, or storehouse for munitions, as well as other provisions (Hening 1809:125).

The south wall of the terreplein was tied into the ramparts, indicating the probable limit of the elevated bulwark. Within the terreplein, two cannon embrasures are indicated by tight concentrations of cannon balls, which were lost in the eroding earthworks and found their way into nearby features and subsoil. The latter phenomenon suggests that the ramparts were open and secured on either side with "cannon baskets" (contemporary English for gabions, which were wicker baskets filled with earth) or other internal revetment improvements, such as fraises (horizontal palisades), to accommodate the V-shaped openings (Hogg 1981:250). In typical use, embrasures constricted in width toward the stockade wall, allowing portions of the cannon barrel to extend beyond the stockade through hinged gun ports (Brown 1890:405, 660).

Shortly after the completion of the stockade an infantry flanker was added to the southwest corner. A separate entrance into the cattle pound through the stockade also was added, and the flanker may represent compensation for the weak point in the perimeter thus created. The outer portion of the flanker, or face, was 15 ft. wide. One entrance or gorge post intrudes the earlier stockade trench. This hole-set work was probably faced with pit-sawed wood and may have been internally framed for elevation.

Few features within the complex are as difficult to interpret, yet provide a stronger indication of the stresses of Native American warfare, as the fortified entrance. Documents note that the few post-massacre strongholds held by the colony were in a state of siege, as Native-American warriors attempted to prevent the English from planting and tending their crops by making the forts virtual prisons (Fausz 1977, 1990; Shea 1983:28-31). While watches were kept, settlers attended to "shutting and making fast the gates of their forts" (Kingsbury 1933:609, 613-614; McIlwaine 1924:104-107, 147, 150). The general appearance of the projecting fortified gate is similar to the Drapers Bawn at Moneymore and to Magherafelt in Ulster, both of which derive from medieval barbicans and, ultimately, from Roman fortified gate and gate house precedents (Blades 1986:264; Camblin 1951:Plate 12). This work was apparently improved by combining a ground level curtain wall bastion, called a "bastard (or modified) caponati," with a gate entry (Barret 1598:126; Leask 1977:108; Hogg 1981:250).

The fortified gate is 24 ft. wide and 14 ft. long, as indicated by the better preserved east side of the L-shaped projection. Due to erosion and plowing, it cannot be determined whether the stockade projection initially was sealed and joined to a port at the southern end. The location of the gate itself may be inferred from the location of the front ditch, however, and is indicated by the line forming the base of the equilateral triangle (between C and D in Figure 2), discussed above. The entry was reinforced by a chevron formed by six posts set at a 45-degree angle. This chevron is similar to a truncated ravelin (demi-lune), which were commonly placed in front of curtains. The fact that the ravelin is pierced for an opening makes it more reminiscent of a modified sally port than a gate (Ramm et al. 1964:101; Hogg 1981:251). In keeping with "bastard" use, this chevron-shaped work, which supported horizontal earthwork revetments, was probably mounted with light ordnance that could be wheeled back to convert the opening into a passageway or a port. Figure 3A depicts four roughly contemporaneous English fortifications with similar features.

The Piercey Redoubt (44PG64)

At the time of Abraham Piercey's acquisition of Flowerdew in 1624, what most likely were the same six cannon noted earlier, along with two murderers (swivel mounted breech-loading cannon), were listed in the muster. The muster also listed 27 servants in Piercey's household (Jester and Hiden 1956:22; 263-265). By 1626, and apparently with the continued support of the new colonial administration, Piercey nearly doubled the plantation's ordnance to 10 to 12 pieces. Thus, approximately half of the publicly owned ordnance in Virginia,

along with the two murderers, were amassed there (Quisenberry 1900:367; Arber 1910 II:486; McIlwaine 1924:120).

Also in 1626, Flowerdew was largely exempted from ordinances requiring that settlements be palisaded against Indian attack. This was due to the fact that the Flowerdew settlement already was "paled and palisadoed" and the entire peninsula was "well railed in" (McIlwaine 1924:120). Where were the additional cannon located, and where was the line of the trans-peninsula palisade? Based on the spatial distribution of cannon balls found, many of the new guns appear to have been placed at 44PG65. The remaining pieces probably were installed in a separate redoubt, the site of which (44PG64) has been completely excavated. The redoubt, therefore, appears to have been built between 1625 and 1626.

A redoubt is an independent enclosed stronghold, either square, rectangular, or otherwise polygonally shaped, and without bastions. Typically, redoubts were built to support other fortifications (cf. Ramm et al. 1964:102; Hogg 1981:251). At Flowerdew the redoubt feature consisted of a 60-x-36-ft. rectangular trench, 2 ft. wide and 0.8 ft. deep, with rounded corners and a 5-ft.-wide south-facing entrance (Figure 4A). The ditch was set with sharpened pales, averaging 0.5 ft. in diameter, which formed a double wall reminiscent of the stockade at 44PG65 (Figure 4B).

This ubiquitous military work has many comparative examples. In basic shape it is almost identical to one recorded from the British Civil War siege of Newark, called the "Scot's Redoubt" (Ramm et al. 1964:Plate 5; 38, 45) (Figure 4C). A similar redoubt is shown at the 1601 siege of Kinsale in a drawing by Baptiste Boazio, and at the siege of Dunboy of 1602 where it is inaccurately called a "sconce" (Silke 1970:128-129, 144-145). A convincing reconstruction, that recalls both the archaeological footprint at Flowerdew and the Scot's Redoubt earthwork, appears in an anonymous 17th-century print (Folger Shakespeare Library n.d.) (Figure 4D).

Based on the artifacts collected within the 44PG64 site limits, this work was mounted with at least one demi-culverin cannon (Barka 1976:52). A 6-x-6-ft.-square subsurface feature located just inside the entrance was almost certainly a powder magazine. Additionally, a straight line of three maul-driven or piloted posts, which bisects the feature, represents the remnant of a wattle line used as a recoil stop and reloading block at the limits of the sleeper system (Peterson 1969:25). This system suggests three cannon were mounted.

The relationship of this feature to 44PG65 is especially informative. The redoubt entrance is 50 ft. south and 1000 ft. west of the bawn. The north wall of the redoubt is exactly in line with the south wall of the 44PG65 bawn curtain

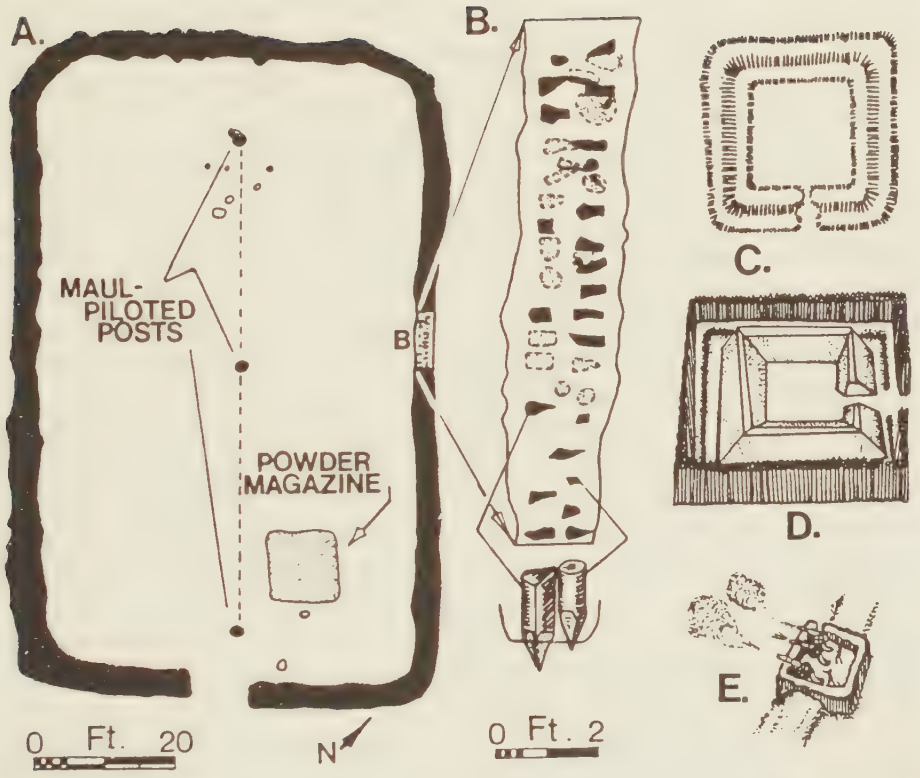

FIGURE 4. The Yeardley/Sharp Redoubt: A. Plan of Feature, B. Plan Detail of Post Molds in Trench, C. Earthworks at the Scot's Redoubt (Ramm et al. 1964:38), D. Redoubt in Contemporary Print (Folger Shakespeare Library n.d.), and E. Redoubt at Flanders 1574 (Padfield 1988:36).

(Figure 1C). Therefore, the redoubt is perfectly placed to provide a flanking support for 44PG65. The site of the redoubt also is 4 ft. higher than the bawn, and thus it is in keeping with Barret's (1969:126) recommendation that such supporting works be situated on high ground. The redoubt appears to be part of a sophisticated defensive system, supporting the south flank of 44PG65 and guarding the southern base of Windmill Point.

The site known as the "Stone Foundation House" has been interpreted as the new manor of Abraham Piercey. It also may have served as a church and meeting house, replacing Structure 3 in these roles (Barka 1976:65). It was built ca. 1627/1628 and is located near the redoubt (see Figure 1C). At the time that the manor was established, the Powhatan chiefdom was on the defensive, and opportunistic European attacks no longer seemed imminent. Thus, in a sense, the 44PG64 manor symbolizes the beginning of the end of the frontier phase at Flowerdew. Its garden fence clearly had no defensive function, and it would have blocked supporting fire to 44PG65.

A road, about one mile long, runs in a relatively straight line from the front door of Piercey's manor (44PG64) to another site (44PG86) that appears to date from the same time period. A third site (44PG79), that also may be contemporaneous, is located exactly halfway between 44PG64 and 44PG86. The straight route of the road and the apparently non-random placement of the three sites along it indicates that they are components of an overall plan. This configuration repeats an earlier (1614-1616) settlement plan at Bermuda Hundred (Rolfe 1951:38; Hamor 1957:28).

A trans-peninsula defensive palisade is documented to have been in existence by 1626 (McIlwaine 1924:120). Archaeological evidence exists for a palisade running to the south of the road track near 44PG86. Possibly this marks the terminus of the trans-peninsula work, that may, therefore, parallel the road all the way from Piercey's manor to 44PG86. A palisade running along that line would serve to enclose the east edge of the peninsula, and would have been firmly anchored on the north by the fortifications there. Additional excavations are required to determine whether the palisade line follows this route.

Together these data support the interpretation that the property was systematically and carefully planned as a fortified settlement and laid out in stages by a surveyor, ship's captain, or other trained individual, creating a formal plantation organization that approaches ambitious Ulster planned communities. This bold plan was doomed to failure by the labor requirements of tobacco monoculture, servant departure, and a collapse in tobacco prices, all of which served to disperse population and reduce the control of powerful men like George Yeardley and Abraham Piercey. In addition, both men were dead by 1627-1628

(Jester and Hiden 1956:265, 377), effectively ending the period of Flowerdew's prominence.

THE HARBOR VIEW TOBACCO BAWN

The Harbor View bawn (44SK192) is the earliest example of an American frontier "Indian" fort, as they came to be characterized over the course of the next two centuries. Thus, it was erected specifically to resist attack by Native Americans. As a result, this site is of national significance, and its later typological descendants can be traced all the way to California. The site is located in Suffolk County, a mile inland from the Nansemond River, and near the confluence of that river and the James. The huge complex is currently being excavated under the direction of Nicholas Luccketti of the Virginia Company Foundation. At present the site has not been fully excavated or analyzed. The following discussion, therefore, represents a preliminary stage of interpretation.

Preliminary dating evidence indicates that the site was first occupied ca. 1635 (Figure 5). Nicholas Luccketti (1991, pers. comm.) reasons that the mature phase of the fortifications date near the terminus of the Third Anglo-Powhatan War of 1644-1645. During that war, a staggering 400 colonists were slain and the local Nansemond Indians were held accountable (Dunn 1907:19-21). The colony's treasury was nearly bankrupted by this war and by the cost of erecting a string of publicly financed forts along the western frontier. Under these grim circumstances, the colonial authorities informed the anxious Norfolk and Isle of Wight County militia that local fortification could be undertaken only under their own initiative (Hening 1823:315). According to Rountree (1990:86), at this time settlers appear to have built forts as bases of operations for attacks on specific worrisome Native American groups, and perhaps this particular work was earmarked for the troublesome Nansemonds. Nicholas Luccketti (1991, pers. comm.) theorizes that, in financial desperation, the militia and/or a local settlement community opted to create a less expensive inland "tobacco bawn" around a pre-existent home lot. It was strategically located near the river highway, yet safely inland from foreign warships.

The Harbor View site underwent a series of modifications, reflected in changes to the stockade, transforming the unfortified homelot into a palisaded defensive work, and ultimately returning it to an unfortified farmstead. In Phase 1, the settlement consisted of two dwellings, at least one outbuilding, and an unpartitioned yard. During Phase 1A, the two main structures were linked by a ditch-set stockade of split rails, facing north (Figure 5, Phase 1A). The palisade incorporates the long facades of the manor house (A) and a probable

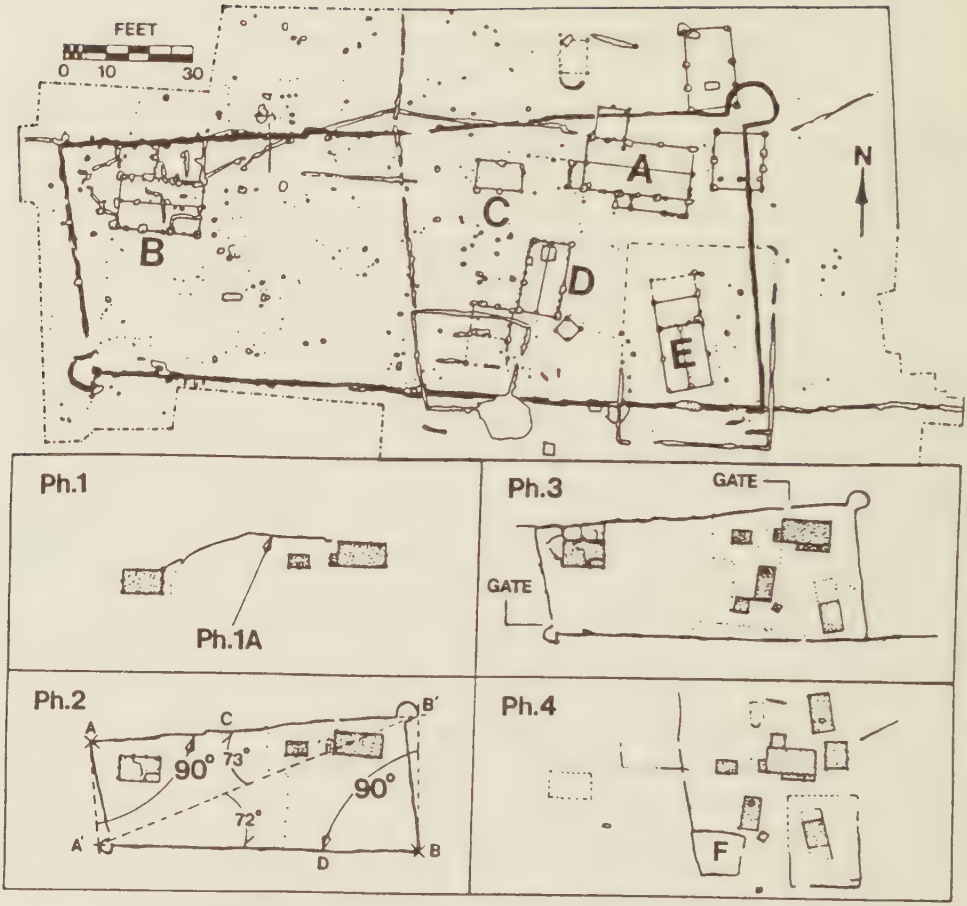

FIGURE 5. Simplified Plan of the Harbor View Fort (above); A Preliminary Site Evolution from 1635+/-5 to 1720-40 (below): Phase 1, ca. 1635, Linear Yeoman Homelot; Phase 1A, ca. 1644, Threat Stage Giant Demi-Lune; Phase 2, ca. 1645, Bawn Constructed with Master Plan; Phase 3, ca. 1645-?, Accommodation to Bawn; and Phase 4, To ca. 1730, Bawn Cannibalized, "Nansemond Angle" Retained with Concentrated Homelot (Courtesy of the Virginia Company Foundation).

quarter (B).

The palisade implies a military function, and is not unlike a very shallow and wide demi-lune, bent to favor fire from the north. This line, in effect, makes the two principle buildings de facto bastions, allowing flanking fire to the south. The implied defensive configuration is reminiscent of homesteads joined directly by defensive palisades at Henricus in 1611, and along the Middle Plantation palisade of 1634, where some settlers were compelled to live, for the most part, within the palisade (McIlwaine 1924:480; Hamor 1957:28-33). In order to save labor, Ulster Irish bawns frequently included one curtain wall that was common to both domicile and exterior defenses (St. George 1990). These works are compelling examples of adaptation by necessity.

Any uncertainly as to whether the palisade erected in Phase 1A was defensive in nature does not apply to the work erected in Phase 2. At the end of Phase I (ca. 1645), and most likely with the aid of local militia or settlers from abandoned plantations, which temporarily swelled the servant population, the original palisade was cannibalized and combined with all available split rails on the property to erect a much more substantial defensive work (Nickolas Luccketti 1991, pers. comm.). The interpretation that the second palisade was formed by erecting split rails is based on the angular shapes of the molds revealed in the trench fill. If this theory is correct, this documents previously unprecedented early use of split rails in Virginia. Alternatively, the butt-sawed split rails may have been the most efficient way of processing locally available cypress or hardwoods to make a contiguous wall.

The second fortification scheme rapidly transformed the plantation into a large, asymmetrical bawn with linked stockade curtains, ranging between 74 ft. and 230 ft. long. The shortness of the 74-ft. curtain, inferred to be the last wall constructed, may have resulted from diminished supplies of rails. Even so, the layout most likely was based on a master plan, which squared the exteriors of the flankers with the angular curtain and laterally bisected the flankers by 72 to 73-degree angles (Figure 5, Phase 2).

The long pair of curtains stretches east to west and, given the relative isolation of Structure B from the other buildings, indicates a determined effort to protect that building. Obviously, the previous yeoman linear homelot organization forced the builders to incorporate some unusual features into the plan. Two large circular bastions, 17 ft. and 12 ft. in diameter, are placed at opposite corners. These massive features enabled the defenders to rake all four curtain walls with enfilade fire with ease. To partially compensate for the length of the wall, an abrupt right-angle turn was built into the north palisade line. This may be a "musketeer," a simple flanking intermediate firing platform.

Ultimately, the Nansemond Indians, and not the militia, created the first clear definition of the service yard. The majority of frontier sites in Virginia offer evidence that their occupants were indifferent to enclosing their service yards. This was due to the practice of allowing livestock to graze in open pasture, which meant that only agricultural fields needed to be enclosed (Neiman 1980a:20). The large size of the Harbor View Fort probably allowed the local community to plan for interior growth and to concentrate breeding pigs and cattle. The area where the latter were kept appears to be situated in the western portion of the compound. A gap in the palisade line just north of the southwest bastion provided not only a fortified entrance, but a funnel-like barrier for driving animals. Similar gaps near variant demi-bastions are recorded at the flankered redoubt at the Susquehannock Fort in Maryland (Ferguson 1941:7) and at Fort Raleigh (Ramm et al. 1964:102; Harrington 1984:8). The larger space within the walls of the fortification allowed more room for the yard directly associated with the manor.

During the Phase 3 layout (perhaps by 1646), the bawn curtains stood long enough to become incorporated into homelot features and the settlement was reorganized. Reflecting the new spatial definitions and social order, Structure D, a quarter or store house with a root cellar, and Structure E, possibly a barn with shed additions, are turned at right angles away from the original east to west building layout. A small cuspate annex is attached to the gable end of the Structure B quarter and work house (Figure 5, Phase 3). Annexes of this type are often associated with "sheilings," informal lodgings used during transhumance associated with pasture animals (Ramm et al. 1970:xiv, 9-11). John White has preserved evidence that these cuspate annexes could grow into stockaded breastworks, or fortified entrances, such as at Lane's dwelling at the Elizabethan fortified encampment at Puerto Rico (Hulton 1984:Plate 3, 173). At this time the building probably was even more strongly associated with dairying, since cattle would have been regularly enclosed in the bawn.

The cuspate annex at Structure B also links up with interior fencing connecting with the northern stockade line. This probably created a paddock or private work area, although Nicholas Luccketti (1992, pers. comm.) has suggested that this work may be a flanker installed during Phase 1A. Linear palisades connect with the curtain corners that do not have bastions, extending beyond the limit of excavation, to the east and west. They may be related to protected planting fields, or perhaps to a linked defensive line with other holdings.

THE ARCHAEOLOGICAL DATA BASE: FORTIFIED HOUSES

Fortified houses represent a primordial functional unit, a defended family residence, either alone or including the immediate portion of the service yard. The isolated plantations that were characteristic of the Chesapeake, once tobacco production became the basis for the region's economic survival, were especially vulnerable to Native American raids. The following works all date from 1675 to 1680, and were built in response to the threats of Susquehannock Indian raids, or in fear of civil insurrection (Neiman 1980b:19). At this time, up to two-thirds of the exposed Northern Neck frontier was abandoned. In desperation, Governor Berkeley urged homesteaders within this zone to concentrate at fortified houses of their own choosing, built at their own expense (Maxwell 1850:68; Carson 1976:5).

The Clifts Plantation Fortified House

Clifts Plantation is located on the grounds of 18th-century Stratford Hall Plantation, and is situated in a commanding position along the cliff overlooking the Potomac River, in Westmoreland County, Virginia. By circa 1670 the site's first probable owner, Thomas Pope, built a manor house, a separate quarter, and a smoke house, which were partially linked by a snake fence (Neiman 1980a) (Figure 6B).

Thomas Pope was the son of a militia colonel, and his household consisted of between six and 12 servants (Neiman 1980b:2-3). Both of these factors probably influenced his fortification plan. In 1675 (Phase IA), Pope's first hasty defensive efforts were devoted to linking the manor and the quarter with a 77-ft.-long fence (Figure 6A-B). As many snake fence rails as could be cannibalized were incorporated into a ditch-set stockade that linked the northeast corner post of the quarter with what would become a portion of the west wall of the manorial bawn (Neiman 1980b:19).

During the second phase of fortification, Pope, whose supply of rails presumably was limited, elected to cut his losses by completely enclosing only the manor house. Starting from the completed wall linking the quarter, the remaining three palisade curtains were erected in turn to form a roughly rectangular enclosure. The southeast, U-shaped flanker, 8 ft. in diameter, was constructed in sequence with the east and south walls. The northwest flanker, more circular in shape and also 8 ft. in diameter, was added after the north and west walls were raised.

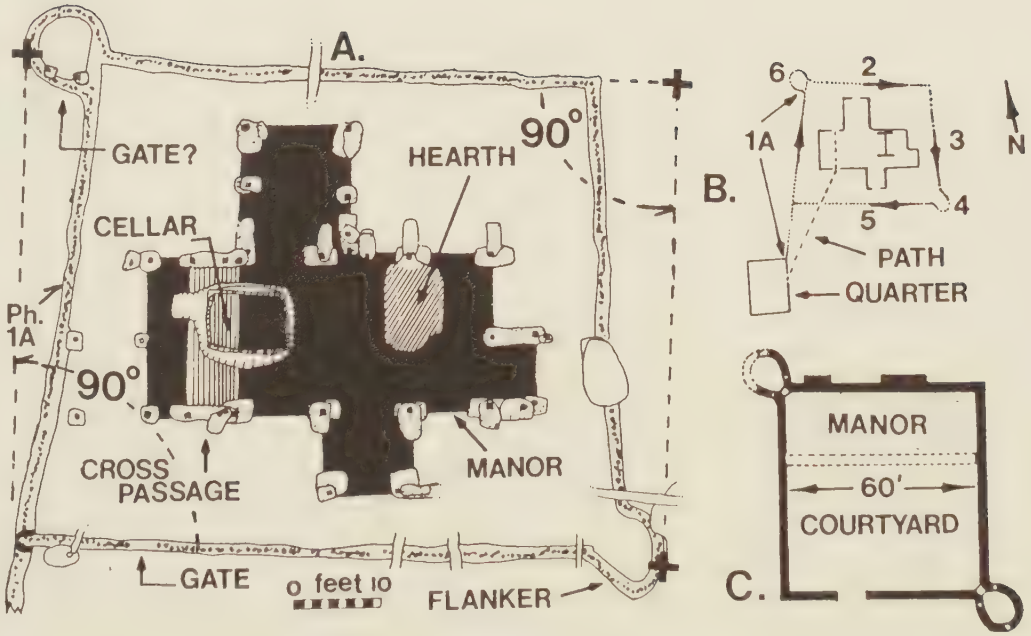

FIGURE 6. The Clifts Plantation Fortified Manor: A. Plan of Manor and Fortification (Neiman 1980b); B. Plan Overview of the Phase 1 Site Complex with Numeric Sequence of Fortification (Neiman 1980b); and C. Skinner's Company Bawn, Ulster, Ireland (St. George 1990).

The constraints of limited labor and of the number of fence rails available thus led Pope to erect a much less ambitious fortification than was the case at Harbor View. Pope demonstrated that he had some level of understanding of the concept of a flanking enfilade fire, created by two opposing flankers, and he applied this laborsaving expedient. The Clifts Plantation bawn was approximately 55 ft. wide (north to south) by 62 ft. long (east to west). The curtains pressed within 7 ft. of the manor. The final result created a very narrow courtyard, almost as if the manor was transformed into a castle keep with a ground level wall walk. The curtain walls are square with the main walls of the manor, allowing just enough room to facilitate access to the flankers. These are deliberately set at opposing right angles to the cross passage, which served as the primary avenue within the manor. A gate pierced the southern curtain wall across from the south passage door, allowing ease of access between the manor and the quarter.

Despite, or possibly because of, these sound defensive efforts, Neiman (1980b:20) notes that the palisade stood only briefly. Accordingly, changes to the Clifts defensive works were minor. In the northwest flanker two intrusive post holes, 3.5 ft. apart, suggest the addition of a gate, facing south. This port may have supplied a valuable para-military lobbied entrance into the service yard. If not, it is the only evidence of domestic accommodation to the bawn while it was still standing. Once the threat of Indian attack subsided, the palisade was probably re-cannibalized for snake fencing and firewood. The fortification probably was in existence for two years or less. Neiman (1980b:20) has reasoned that its primary value to the settlement was psychological. Hence the work, which must have been a nuisance in hindering movement, was demolished as soon as the fear surrounding the uprising subsided. Technically, this work is a purely defensive fort and not a bawn, as it is unlikely that animals were retained for any appreciable length of time within the confined "courtyard."

The Hallowes/Steel Tower House

At another defended Westmoreland County homelot, the inhabitants of the Hallowes/Steel household ingeniously reduced the defensive options noted at Clifts one step further (Buchanan and Heite 1971; Neiman 1980a; Carson et al. 1981:191). Excavation revealed a site plan dominated by a 20-x-50-ft. earthfast structure, with a central H-shaped hearth (Buchanan and Heite 1971:Figure 2). The Steels cut their labor losses even further than had Thomas Pope by incorporating the long facades of the existing house into the defensive work, making them the curtain walls. Ditch-set stockaded towers were added to both

gables, converting the structure into a tower house. Such works were popular private defensive options from the 14th to 17th centuries in Ireland, Scotland, and north and west England (Brunskill 1971:100-101; Leask 1977:75-98). As it turns out, John Hallowes, who was born in 1615 in Lancashire County (northwest England), was a Major in the Virginia militia. He may have advised his granddaughter, Restitute Steel, in the design.

The completed towers deliberately overlapped the long facades of the house at the gable ends, at opposite corners. The tower platforms measured 6 ft. and 11.3 ft. wide, thus creating nearly a 360-degree field of protective fire. The plan of construction clearly paid particular attention to providing an enfilade down the long facades of the dwelling (Figure 7C).

Reminiscent of the southeast bulwark's outer works at 44PG65, the tower wings consist of 70-degree angular "flanks" attached to bastion "faces," providing four linear facades in all. At both 44PG65 and Hallowes, heavier posts were probably set at the angles of the works. Given the apparent care employed in fabricating these features, it is plausible that crenelated parapets, which would have aided downward fire on potential raiders, also were added (Stone 1961:194; Arber 1910 II:264).

The archaeological footprint of the original dwelling only hints at possible changes made to it to accommodate defensive measures. During the initial period, when there was the greatest threat of attack, the family may have moved upstairs to the loft, employing the downstairs as a temporary byre for breeding livestock, as well as a granary and storehouse for goods. In order to gain access to the elevated towers, doorways from the loft were installed (Figure 7, C2). Accordingly, the height of the floor of the towers was probably at that of the false plate. The original lobbied entrance near the central hearth may have been temporarily sealed. The orientation of the larger west tower wing in relation to a later palisade suggests that the west gable was pierced to create a fortified entrance that was further embellished with a complementary palisade.

Though rare in the Chesapeake, the Hallowes defenses have many parallels elsewhere. The four-sided bastion form is frequently used in Ulster Irish flankers, including Magherafelt (Figure 3), and are placed along curtain walls not attached to dwellings. Nearly identical contemporary design in the defensive towers, or "wings," may be seen attached to the Drapers Company manor at Monnemore (1622) in Ulster, Ireland (Reps 1972:Figure 15). Tower houses in Ulster were extremely popular with Scottish immigrants, and English settlers often used them to anchor their weak outer courtyard defenses by making at least one flanker integral to the manor. These are really enlarged tower house sub-types with expanded courts (St. George 1990:257-258, Figures 12-15). An

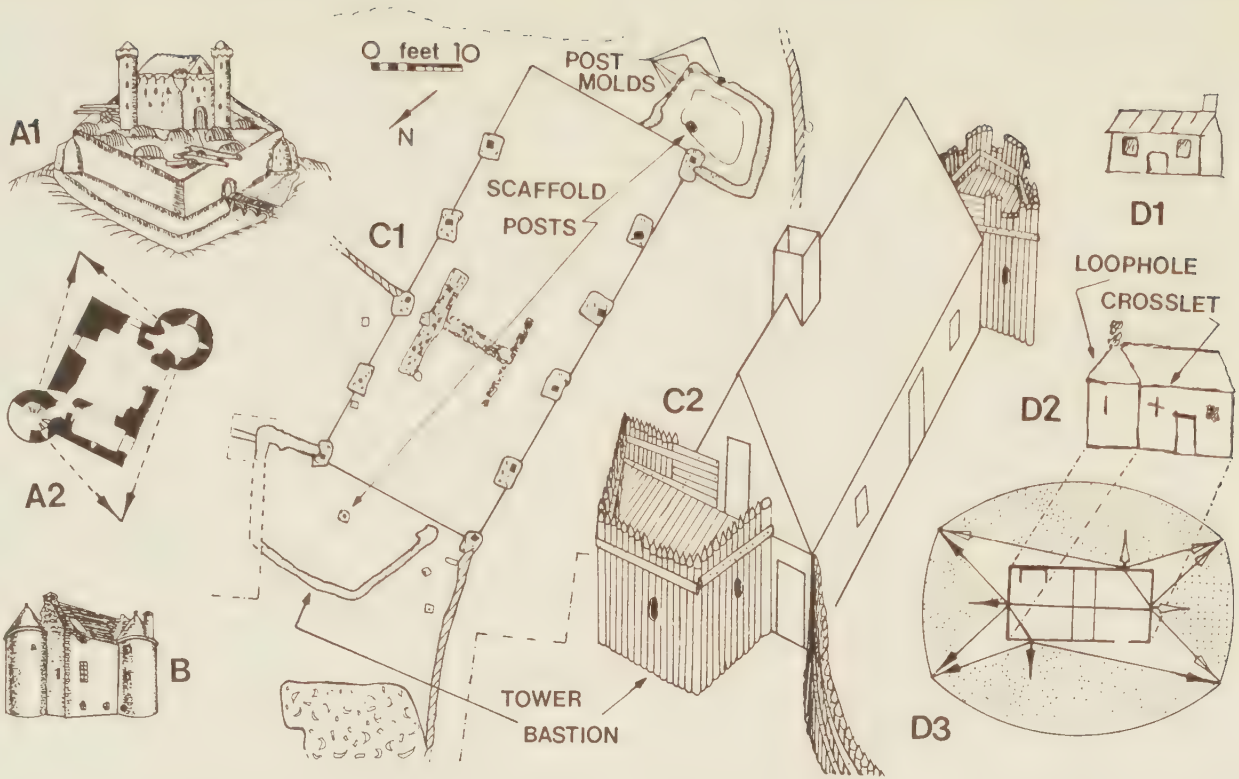

FIGURE 7. A. Burt Castle (Leask 1977): 1. View in 1601, 2. Ground Floor Plan and Enfilade; B. Terpsie Castle (Simpson 1966); C. Hallowes Tower House: 1. Site Plan (Buchanan and Heite 1971), 2. Conjectural Reconstruction; and D. May/White House: 1. May House 1664, 2. Major White House 1680 (Forman 1938), 3. Suggested Enfilade.

example of a wooden stockaded tower bastion system exists among De Mont and Champlain's fortified settlement at Port Royal, Nova Scotia, in 1605. This work was sacked by Virginia's Captain Samuel Argall in 1613 (Hannon 1969:18,113). Many masonry examples survive in the British Isles, such as the core of Burt Castle (1601) in Inishowen (Figure 7, A1-2), Doe Castle and Roodstown in Ireland, and Terpsie Castle in Scotland (Simpson 1964:78; Leask 1977:Figures 47 and 73; St. George 1990:259) (Figure 7, A3).

Major White's House at Jamestown

Since archaeological evidence for humble fortified houses is virtually non-existent, the May/White House at Jamestown will be briefly discussed here. The development of the defensive component of this structure exemplifies the reductio ad absurdum of the lowest levels of private fortification, as they squeezed in on the essential domicile. The structure is drawn on the Sherwood Plat of 1680 and published by Forman (1938:128-129). In Forman's work (Figure 7, D1-2), the house is illustrated next to another depiction of the same structure from the Knowles Plat of 1664 (Forman 1938:128-129). The second view is from the opposite angle; thus, the two illustrations provide a composite view of all four sides.

In 1664, the house had a central doorway, suggesting a cross passage, with two large flanking windows. In 1677, the house was purchased and altered by Major William White, a burgess from Jamestown (McIlwaine 1924:43, 200, 324). By 1680, the structure is shown with only one small window to the right of the door. In place of the window on the left is a cross-shaped aperture, with its horizontal arm perhaps 2 ft. above the height of the door jamb. This opening was probably installed when the clapboards were renewed, most likely dating to the destruction of Jamestown in 1676 by Nathaniel Bacon's rebels (Carson 1976:9). Rampaging armies, or even quartered troops, were known to favor clapboards for kindling wood.

Although Forman (1938) did not note the significance of the peculiar aperture, the cross shape is exactly that of a "crosslet," a gun loophole arranged in the form of a cross to allow a wide range of fire. Presumably its function was to protect the front of the house and, in particular, its door (Simpson 1966:87; Stell 1981:40-41). The crosslet gun port reflects a medieval ancestry dating back to the use of the cross bow. A second, more typical, vertical gun loophole is at the center of the gable end on the ground floor, and at the same height as the crosslet. Both ports are deliberately set above the height of a man and were probably reached from benches set against the interior walls. Based on the tenets

of the Gunpowder Revolution, identical defenses can be predicted on the other side of the structure's cross passage and opposite gable, forming a 360-degree angle of fire. Thus, with minimal investment in labor a simple dwelling was converted into a small fortress.

Though seemingly quite different, the model for this defensive system is the same as that for the Clifts cross passage/flanker system and the Hallowes lobbied entrance door system and tower bastions. Demonstrating indirect kinship with the Hallowes/Steel tower house, this work was probably influenced by the less pretentious defenses associated with English frontier borderholds and bastle houses, again especially notable along the North Border with Scotland (Ramm et al. 1970:61-73; Johnson 1989:11-121). Unlike the tower house, these structures normally concentrated on simple squared masonry domiciles intended to retain cattle and goods on the ground floor. Typically, no new gun ports were added. Similar defenses emerging from prototypes chiefly designed to be defended against limited raids by thieves, cattle rustlers, and pirates in the Old World may have been the most popular option in the Chesapeake against rebels or Native Americans. The only new adjustment was substituting wood for masonry.

DISCUSSION AND SYNTHESIS

At both the Flowerdew stockaded settlement and at the Harbor View Fort, it appears that conflict with Native Americans and the resulting imposition of some form of emergency martial law were required to create community bawns. At Flowerdew, the firm grip of the Virginia Company's martial law enacted rigorous military control in planning the defensive system, envisioned as supporting the entire upriver community. At Harbor View, the linear plan of the initial homelot directly affected the military design. In a manner of speaking, this site simply put on armor, making it a bawn, and not, in balance, a real military fort. Once again, these defensive works benefitted the larger community.

On the one hand, Flowerdew probably was built by an English professional soldier who was influenced by Dutch designs. Harbor View, on the other hand, is essentially a product of frontier conditions, probably built by planters with restricted military experience (Shea 1983:51). Despite these differences, both settlements were based on simple master plans, which honor the tenets of Renaissance defensive ideals. The Flowerdew works are best thought of as "field works," in contrast to formalized military engineering. It is probably no coincidence that both works are approximately 240 ft. long. This is the

maximum accurate range of smooth bore muskets, an essential ingredient in defense against Native Americans for effectively "scouring the pallizadoes" (Kingsbury 1935:259; Peterson 1956:163).

Points of comparison between the two works are many, despite the functional differences in the defenses. The high profile of both fortifications suggests that these were intended as strong visual warnings. As practitioners of guerrilla warfare, it is unlikely that either work was attacked in great force by Native Americans. Therefore, the defenses mostly provided a strong sense of security to the inhabitants and a fortified base of operations for offensive action, where the real fighting normally took place. In each work the expedient defensive shell was rapidly enclosed by ditch-set trees or split pales. Further, both sites appear to have enclosed some key cattle and breeding livestock in an open area devoid of structures. By keeping nursing calves penned, milk cows with attached bells and weights could be kept near the protective habitation zones (Chinard 1934:122-126).

Separated by a generation, the frontier adjustments to practical defense against Native Americans reflected in the Harbor View Fort are strongly evident. The circular bastions at Harbor View seem to be intended for massed individual fire from privately owned muskets and fowlers aimed at rapidly moving targets (Peterson 1956). At Flowerdew, ordnance was employed because the bawn had to be defended against the Spanish or other European rivals as well. In addition to shoulder arms, light cannon and murderers also were employed as anti-personnel weapons. Perhaps this was due to a lack of totally reliable ignition mechanisms available for muskets. At Flowerdew the works are less substantial on the west side, possibly already reflecting the accommodations to the realities of inland Indian warfare indicated at Harbor View.

The defensive vocabulary of community bawns flows directly into fortified houses. The later frontier works at Harbor View (1645) and at Clifts (1675) are strikingly similar, sharing the multiple attributes of: (1) opposite flanker configuration; (2) simple master plans with angular curtain walls that are squared by flanker limits; (3) curtain construction components that employ cannibalized snake fences; and (4) initial threat stage reactions that include linking the manor and the quarter with a palisade, later replaced by a complete sealed defensive curtain. These works suggest that an emerging regional solution to the need for efficient fortification in the face of Indian threats was diffused via militia social networks. Clearly, more examples are needed to confirm this strikingly parallel adaptive behavior, that is separated spatially and spanning a generation in time.

The curvilinear flanker configuration employed at both sites was frowned

on at formal military fortifications, yet they are the direct typological descendant of the medieval tower bastion (Hogg 1981:100-101). Both U-shaped and circular flankers were frequently used in Ulster, Ireland, and were most common among the more modest bawns (Reps 1972:Figure 16; St. George 1990:25, Figures 12-14) (Figure 6C). The spatial consolidation of the smaller Irish bawns noted above demonstrates the same contractive defensive instincts revealed at Clifts. Thus, when considered as a group, these works demonstrate that the Clifts courtyard, unlike the courtyarded Ulster models, was entirely defensive. By the same token, the sheer size of the Harbor View and Flowerdew works allowed for effective use of that space, and forestalled the demolition of the curtain.

How were the circular bastions secured against collapse, and were they elevated for firing steps? Obviously, no one really knows. As suggested by details in the 44PG65 stockade, the curvilinear flankers and palisades there were probably heavily wattled and staked and possibly reinforced with exterior sods. None of these features would leave a deep impression in the subsoil. The absence of any ditches for earthworks at the 44PG64 redoubt, and only a small remnant of the outer ditch at 44PG65, suggests how biased the archaeological footprint can be. Although there is no material evidence of supports for elevation within the curvilinear flankers, it is likely that wide benches or planked barrels were set within them to create an elevated firing step. The smaller sized flankers at the Clifts may even have been elevated, or perhaps built around the readily available regional resource of tobacco hogsheads. On the other hand, it cannot be ruled out that the works, in effect, were convenient ground level shooting galleries behind protective gun ports.

When the evidence for opposite flanker configuration is compared with the Hallowes/Steel tower house and the May/White house, one cannot fail to be impressed by the simple economy of the 360-degree enfilade created by opposite flanker, tower, or gun-port configuration. As a group, these works form a powerful illustration of how the size of a servant household or militia labor force might influence the scale of defensive ambitions. Based on 16th-century Lowland Scottish castle precedents, a minimal, yet highly efficient, defensive disposition was to build only two opposing tower bastions (Figure 7A-B). These hybrid works surface beginning in the 16th century, since smaller manorial households rarely had enough defenders and projectile weapons to operate four corner bastions. The term "Z-plan" is intended to convey this opposite tower configuration, and denotes the terminal stage in castle evolution in Scotland, creating the frugal and efficient Scottish tower house (Simpson 1966:78-79). As we have seen, the only direct Chesapeake parallel to the Scottish tower house is the Hallowes/Steel tower house. The broader adaptation of the Z-plan to

Virginia conditions indicates diffusion of this defensive technique from the North Border of England, down the northwest border in places such as Lancashire County (John Hallowes), and from Ulster. This diffusion probably arrived more directly through folk networks within the citizen militia, although it was probably encouraged early on by the veteran militia elite who saw service in Ireland or the North Border.

CONCLUSION

Private fortifications were arguably the most frequent, and most useful, defensive works built in 17th-century Virginia. At the end of the century, the Virginia Assembly condemned the entire publicly financed interior frontier and coastal fortification system as both military and fiscal liabilities (McIlwaine 1924:410-411; Brodbeck 1942:109-110). Especially during Indian wars, private fortification and a general dispersal of arms became the only feasible option. At no time was this sense of precariousness felt more acutely than during the prelude to Bacon's Rebellion (Carson 1976). Indian raiders routinely bypassed frontier fortifications supported by the unpopular "castle tax," rendering them virtually useless except as bases for aggressive operations. The high statistical correlation between militia officers or family with strong connections to them and recognizable fortifications should not be surprising. These were the very people most often required to leave their households in armed bands to pursue Virginia's offensive posture in Indian warfare. They did not wanted to leave their wives and children behind, and accordingly did what they could to fortify before departure. Thus, the unavoidable trickle down impact of a citizen army resulted in plantation fortifications that were probably also routinely avoided by Indian raiders.

International military defensive technology is more resistant to change than regional building styles and forms a distinctive "grammar" which can be identified. Except for the Virginia Company period, and then only under the circumstances of martial law, extreme wealth, and desperate Indian conflict, Ulster Irish bawn models and plantation organization is predictably rare. Within the emerging frontier, the increasing preference for the west English house plan and a loosely organized homelot, which encouraged outward building expansion, forced hard decisions on homesteaders attempting to implement defensive systems (Neiman 1980a; Carson et al. 1981:160-178; Carson 1986:55-56). Accordingly, the smaller works in this review were virtually forced into contractive defensive postures. Nonetheless, the simplified Z-plan enfilade was adopted, constructed around what could be successfully and expediently defended, and except for the

main dwelling, sacrificing whatever could not be defended.

Along the frontier, the speed of warfare forced planters to adopt the same cultural attitudes towards defense that the Native American and traditional Gaelic cultures had adopted before them. Throw up military works when you need them, tear them down afterwards (if they did not fall down or wash away), all in order to save labor. The need to defend against lightning raids led to a preference for ditch-set stockades over technically complicated post and rail works (Kelso et al. 1990). In this progression, split rails associated with the snake fence may have been "invented" as the ultimate tool for solving three nagging frontier problems simultaneously: (1) how to build with green wood, (2) how to defend oneself rapidly, and (3) how to flexibly fence with the absolute minimum effort.

It would be a mistake to infer from this preliminary work that we are ready to make broad generalizations about private fortification designs. More carefully excavated examples are desperately needed. We cannot responsibly compare these works to publicly funded works in Virginia or the Chesapeake, much less with Ulster Bawns, or with private forts in New England or England, until more work is completed on both sides of the Atlantic. Only then will scholars be prepared to accurately assess how unique the Chesapeake examples are and how they fit into broader adaptive patterns. At some point international colonial efforts by the French, the Dutch, and the Spanish, also should be closely compared.

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A SCANT URBANITY: JAMESTOWN IN THE 17TH CENTURY

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JAMESTOWN AS FAILURE

Poor old Jamestown! To read the literature one can only conclude that the earliest permanent English settlement on the North American mainland was the forerunner of all the blighted cities that followed. John Smith, Jamestown's Founding Father if ever it had one, called it "a verie fit place for the erecting of a great cittie" (Smith 1986:29). That was the first expression of what became a perennial hope, restated again and again throughout the 17th century by visionary planners and ambitious crown officials. Contemporary visitors and later historians have been less enamored of the reality. "At my first coming hither," John Pory wrote back to England in 1619, "the solitary uncouthnes of this place...did not a little vexe me" (Powell 1977:109). It has vexed historians ever since. "No city sprang up out of the fort," Warren Billings (1990:69) writes in the most recently published history of the town. "Jamestown was never anything but a tiny hamlet with few of the attributes of an urban community." The judgment of posterity confirms the low opinion of eye witnesses 300 years ago. Jamestown was America's first city-planning failure.

Compared to what? Can a town be all bad that resisted two native revolts, bounced back from a thorough sacking by Nathaniel Bacon's rebels, rebuilt after numerous fires, and outlasted years of planter apathy and

bureaucratic impotence before the capital was finally shunted to Williamsburg? Jamestown was the principal seat of government in England's largest overseas colony for 92 years. Even if residents occasionally grew tobacco in the streets, the town must have functioned tolerably well.

Historians have written very little about the activities and functions of this 17th-century port of entry on the edge of England's North American empire. They are not entirely to blame. Much documentary evidence about Jamestown disappeared with the loss of all the county and some of the provincial records. The most evocative surviving descriptions are those written by promoters, officials, and travelers whose often contradictory testimony reminds us that they had their own reasons for filing reports that made Jamestown look better or worse than it really was. To the considerable extent that historians have had to piece together their knowledge of Jamestown from these fragmentary and partisan sources, the history of the town fails to convey a clear and convincing picture of Virginia's principal 17th-century port, capital, and manufacturing center.

What if anything made Jamestown urban? Five years ago, four of us decided to take a different approach to finding an answer. We would restudy the archaeological record thoroughly before consulting the incomplete written records that sometimes led earlier researchers astray. Amateur and professional archaeologists have conducted excavations on the island for almost a century, sporadically and inconclusively at first, but with great effect since the National Park Service assumed the majority jurisdiction in the mid-1930s. The fort of 1607 was the grail that no one ever found (or at least knew they found). What they did discover was "Jamestown City," the disappointing hamlet that historians love to hate. It has been assumed that this was only a northern fragment of a larger settlement and that even most of this suburb was lost to erosion in the James River. We are not so pessimistic.

Although the National Park Service has spent a king's ransom to unearth, record, conserve, store, and now catalog the largest collection of 17th-century archaeological artifacts in the country, the material has been studied comprehensively only once to answer larger questions about the town that Jamestown became during the second half-century. John Cotter brought together his own work and his predecessors' in a comprehensive archaeological report that historians and others have relied on since 1958 (Cotter 1958). Its composite site plan alone represents a significant contribution. Cotter's report is now 35 years old. Since 1958, archaeologists have excavated scores of sites throughout Virginia and Maryland, and students of social history, vernacular architecture, and material culture have revised the portrait of society and everyday life in this 17th-century colony. So far, Jamestown has played only a modest role in the

development of that new picture.

Believing that the time had come to bring new perspectives to the subject, we set about reexamining the artifacts and excavation records at Jamestown. Maybe answers to the question, "What made Jamestown urban?" lay unrecognized in the drawers and file cabinets at the National Park Service laboratory. As our research progressed, we identified three realms of inquiry that we thought might throw new light on Jamestown's urbanity: (1) the town's physical layout (and the evolution of that plan through time), (2) a wide range of building quality and forms (with implications for living standards in the town), and (3) the diverse functions that the structures themselves performed. At this point, our reevaluations of individual sites are safer than general conclusions. Samples of the former are collected in Bragdon et al. (1992). What follows is a preliminary assessment of the material, still largely uninformed by the documentary and artifactual record. While hoping to avoid the role of counter-revolutionaries in the study of the 17th-century Chesapeake, we must observe how the Jamestown findings temper the image of a land in which virtually everyone occupied impermanent buildings. However idiosyncratic the capital was socially and architecturally, the story is incomplete without Jamestown.

PLAN

The plan of Jamestown City has eluded modern historians principally for two reasons. The first problem resulted from scholars wrongly identifying some structures as public buildings and perhaps misjudging the importance of others. To complicate matters, the town plan has always been studied with all its structures and features jumbled together, those built later in the 17th century or even the 18th century obscuring the order of the town as it appeared in earlier decades. While the evolution of certain sites has been critically evaluated, initially by J. C. Harrington and later by Cotter, the entire ensemble of buildings and their furnishings have never been studied sequentially. Remains from various eras have tended to be compressed into a single image of life before Williamsburg. By studying the plan in reverse chronology, a clearer picture emerges of the town's evolving organization.

Looking first at those overlaying features of the 18th century, two major groups dominate. The most prominent is the Ambler House, now understood to have been built in the middle decades of the 18th century (Figure 1). Richard Ambler (d. 1766) or his son Edward (d. 1768) razed several major buildings on the site to make way for a new five-part Georgian mansion. The site was cleared to give a grander and more estate-like appearance to the Ambler property, and

FIGURE 1. Ambler House as Remodeled in the 19th Century (Harper's Weekly Feb. 1892)

his mansion, ancillary buildings, and landscape features were laid out in a unified manner that ignored the different and less rigid orientation of earlier buildings on the site. Much of the pastoral nature that made the island either disappointing or romantic for later observers was created by Ambler's deliberate attempt to eradicate all the remains of the old capital under his control (Shelly 1954:414-16).

An earlier and more modest 18th-century gentry complex was located near the present edge of the river, 350 ft. west of the Ambler complex (S6/7, 8/9, 10, 11, 12 and 13). Here, a center-passage brick house was constructed with a detached kitchen, dairy or meat house, and possible quarter (Figure 2). This was a distinctly 18th-century ensemble. Except for an occasional detached kitchen, outbuildings were rare in Jamestown, and we now increasingly recognize that such substantial and well-ordered complements were rare for the 17th-century Chesapeake in general (Upton 1979:148-217; Wenger 1992; Lounsbury 1993). Three or more fragmentary foundations may represent a third 18th-century house and outbuildings slightly further to the west (S62, 63 and 68), reinforcing the impression to be drawn from the Desandrouins map that late colonial Jamestown had the appearance of a hamlet as modest as any Virginia courthouse crossroads (Desandrouins 1781).

Once the 18th-century accretions are peeled away, the 17th-century town emerges, with a street pattern focused on public buildings and lined with contiguous lots. In the last quarter of the century, two public buildings were conspicuously situated on axis at opposite ends of a main street. Although dating of roads and ditches has not yet been thoroughly pursued, it appears that the narrow neck of land on which the town was built was reached in the 17th century by a road — presumably the "Great Road" mentioned in the records — that meandered past an occasional tavern, house, and industrial complex before it turned to the east and ran along a slight ridge bounded by the river and a swamp behind. At the outer edge of the bend, as the road turned parallel to the river, the church held a commanding position toward the west. Similarities with St. Luke's and the second Bruton Parish Church have led Dell Upton to argue that the last Jamestown Church was erected about 1680, shortly after Bacon torched the town (Upton 1986:62). House lots were marked out by ditches on each side of the road as it extended to the east, though not in the precise grid pattern of Williamsburg and other 18th-century towns. Dwellings, taverns, and an occasional commercial building were roughly centered in these lots rather than being aligned regimentally along the road.

Boundary ditches lining the street flared at the east end in recognition of the second official-looking building (S44/53/138) just beyond. Although this was

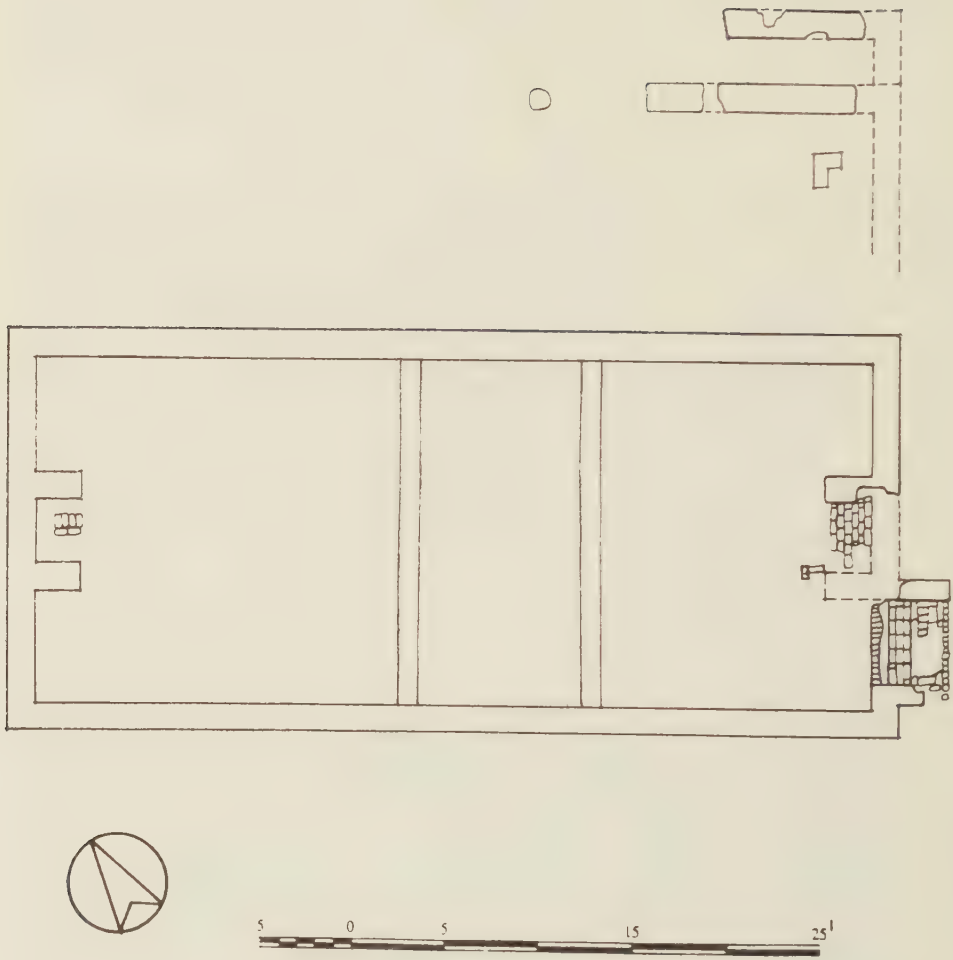

FIGURE 2. Structure 6/7. This and subsequent plans by Jeffrey Bosteter after various drawings, notes, and photographs in Colonial National Historical Park collection, Jamestown.

the most poorly excavated and recorded site anywhere at Jamestown, the pieced-together, U-shaped plan and the decorative polychrome plasterwork that adorned its formal front parlor reveal the extraordinary richness of the edifice (Figure 3). The fact that the structure is the largest and most elaborate single-unit building in the 17th-century town, flanked by two well-built ancillary structures, and situated in such a prominent location strongly suggests that it was the official residence of the governor. Built before mid-century, the mansion house survived all the vagaries of the "suburbs" until Ambler tore it down about 1750. The late 17th-century town plan was thus one in which the authority of church and state were prominently displayed, while private property occupied less dominant positions. What began as a peripheral outgrowth, it seems, gradually became the core of the later 17th-century town.

The third quarter of the century was a boom time at Jamestown, more lively even than the era of post-rebellion reconstruction. Several significant buildings were constructed or rebuilt, including substantial groups of houses, some with multiple stories and built of brick, dispersed through surviving parts of the community. The first property a traveler passed when entering the town, for example, was a pair of substantial brick houses covered by a pantile roof, hung with iron window casements, and served by a detached kitchen (S1/2 and 3). Closer to the center of activity an important building came into view (S112). Rebuilt for a third time after mid-century, it was a large brick structure with two principal rooms, a rear service shed, and a broad porch tower on the front (Figure 4). The generous plan and the discovery of ornamental plaster fragments — one in the form of a spotted leopard — and a tiled floor similar to that in the Maryland statehouse at St. Mary's City, point to a public function for this building. It may have been Virginia's first specialized statehouse, perhaps that destroyed by Bacon's rebels. Associated artifacts suggest that the building burned sometime around 1680.

Based on reevaluation of the subsurface features, weaponry, and other early 17th-century artifacts found immediately west of the church, and in light of what archaeologists have learned about 17th-century ditch and fort construction over the past decade, Virginia Company Foundation archaeologists have suggested that the original Jamestown fort may indeed lie partially under the Confederate earthworks (Kelso, Luccketti, and Straube 1990). After the peace following the 1622 uprising, Jamestown began to spread beyond the fort's palisade. The eastern suburb took shape in the next 20-30 years, incorporating what was probably the old church site (in the same location as the 1680s rebuilding), as well as the town's infrastructure that we have briefly described. Gradually, as the density of the suburbs increased during the third quarter of the

FIGURE 3. Cherubic Face from a Decorative Plaster Ensemble Probably Added to Structure 44/53/138 Late in the 17th Century

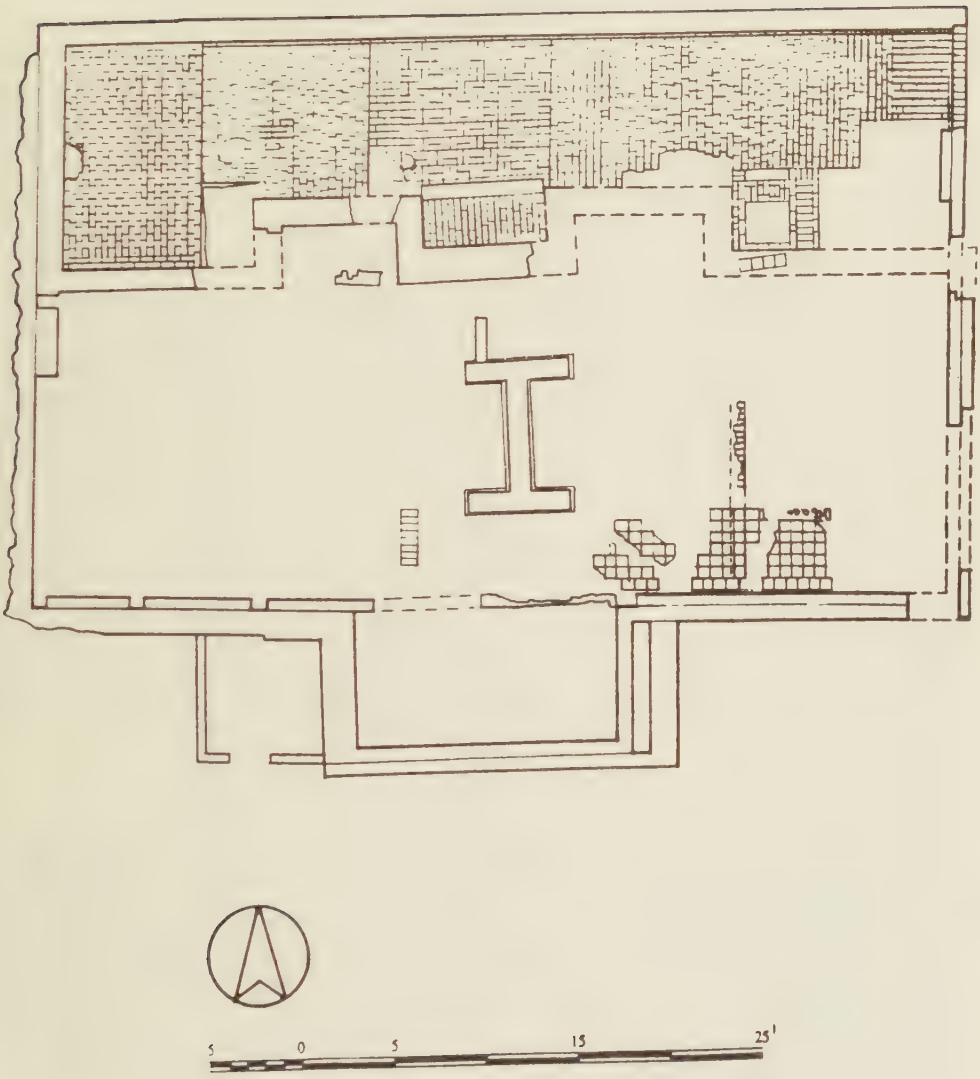

FIGURE 4. Structure 112

century, the plan began to resemble other linear American towns laid out in the 17th and early 18th centuries.

The similarity between Jamestown's eastern suburb as it evolved and Williamsburg as planned at the end of the 17th century is worth noting. The road from the old capital to Williamsburg worked its way around the College of William and Mary and then ran along a straight ridge between two river systems (Figure 5). The college building was prominently located at one end of the main street, the Capitol at the other. On a cross axis to the main street — approximately the same orientation of what we suspect is the third-quarter statehouse at Jamestown — was the Governor's Palace. Both towns had secondary streets. Williamsburg had Francis, Nicholson, and others parallel to, as well as intersecting with, Duke of Gloucester Street; Jamestown seems to have had at least one east-west street south of that between the church and governor's house. But both plans were essentially linear and the focus was along the main road. While Williamsburg was larger, more regular, and complex, conceptually the two functioned much the same.

To summarize, what one sees in the excavated portion of Jamestown Island is the mature mid-to-late 17th-century outgrowth east of the fort. This is a more consequential area of settlement than has been realized, with a discernible civic composition. It is entirely possible that another significant suburb may remain to be found west of the church, now represented only by the elaborate Ludwell-Statehouse group. If correct, future excavations there will further revise the impression of Jamestown as a not inconsiderable New World village.

BUILDING STANDARDS

The spectrum of observed building standards and styles at Jamestown also suggests an urban character. That range is surprisingly broad, with both the upper limits and the average seemingly higher than we have come to expect on rural sites. There are remains of three or four extremely rich and elaborate structures, a surprising collection of large row houses, several relatively substantial buildings with principal floors dug into subsoil, and a handful of dwellings and work buildings with cheap frame walls standing on earthfast posts or ground-laid sills. A few known structures at Jamestown were relatively mean, having a single room with earthen floors and possibly even an open hearth. On balance, though, one can understand why earlier generations of architectural historians erroneously believed that 17th-century Virginia looked like 18th-century Williamsburg, only with pantiles and casements (Forman 1938; Cotter 1958:39, 78, and 128).

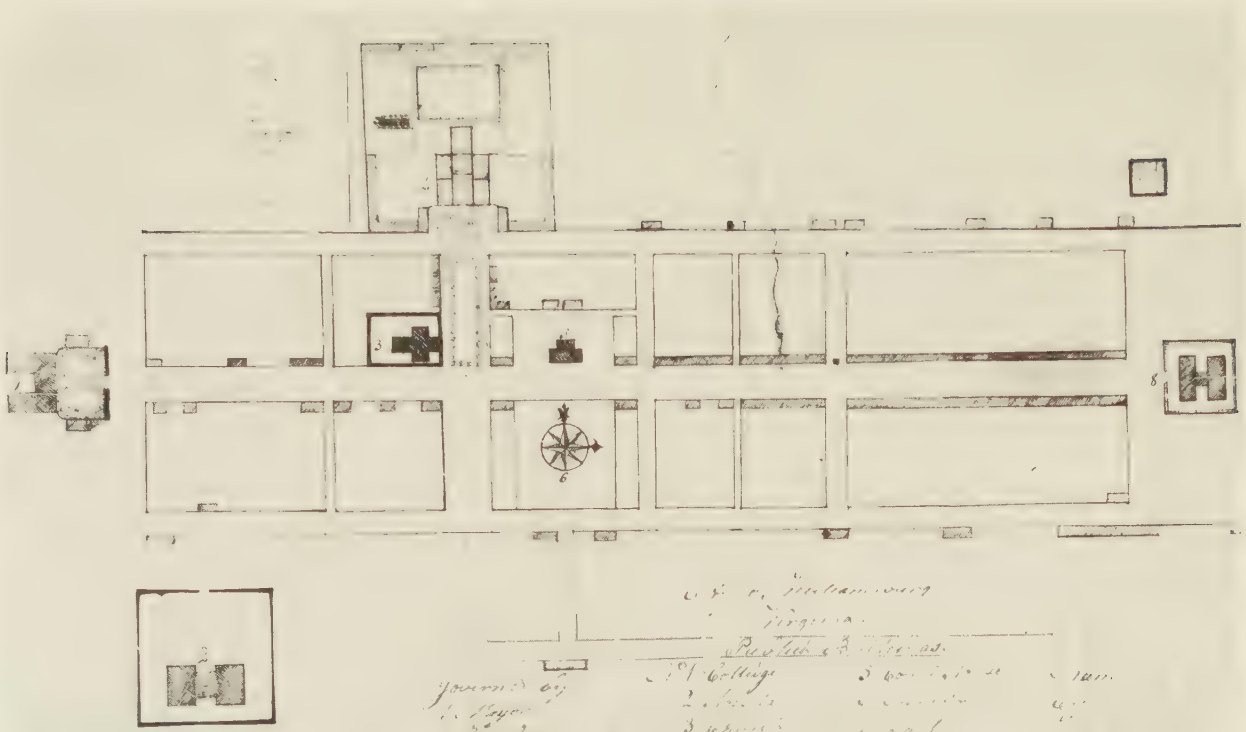

FIGURE 5. Plan of Williamsburg, Ca. 1781, from John Graves Simcoe Papers, Colonial Williamsburg Foundation

Of the earthfast Jamestown buildings for which much can be discerned, some represent a relatively high level of accommodation, similar to the Thomas Pettus house at Kingsmill (Kelso 1984). Structure 71, possibly built in the third quarter of the 17th century, was a 29-x-18-ft. wood-floored house, built on four pairs of earthfast posts and containing a two-bay heated hall and an unheated inner chamber (Figure 6). This building burned late in the century and was replaced by a superior six-bay earthfast building (S41/74/77), with a 9-ft. passage separating two heated rooms, a 20-ft.-square hall, and a 17-x-20-ft. chamber. The latter could boast of plastered walls and two brick chimneys — much better than the average Chesapeake house of the following century. Nearby was a two-room, 32-x-16-ft. building (S40/72), half framed with earthfast posts and half set on the brick walls of a plastered cellar. It may have served as a kitchen and quarter for its larger neighbor, but it too had evidence of some refined finish in the form of plaster, slates and roofing tile, and an iron casement frame found in the cellar. Structure 116, a three-bay trapezoidal building 15 x 17 ft. deep, 30 ft. long, and equipped with a wooden chimney above a brick firebox, may represent the lowest level of recognizable dwellings at Jamestown, although it too apparently was covered with a pantile roof (Figure 7). Occupied in the last quarter of the 17th century, the house almost certainly contained a heated hall and a cold chamber. Structure 18 measured about 14 x 18 ft., but we will know little about it until the site is re-excavated.

Among the rudest first-generation building remains found in Virginia are structures with the principal floor dug below grade. Two later 17th-century buildings at Jamestown, a house (S38) and a work building (S110), seem to employ this construction method, but again the indications are that these were relatively well-built, with brick lining or foundations, unrelated perhaps to the pit houses or "cabins in the ground" discovered elsewhere (Noël Hume 1982:53-55). The remnants of smaller earthfast buildings were probably missed in the excavations, as only Harrington and Cotter paid serious attention to soil stains. Yet, the general dearth of small or poorly built dwellings reinforces the sense that there was at Jamestown a concentration of superior building remarkably different from what existed elsewhere in the colony. As Dell Upton (1979:30) has observed, Jamestown in its second half-century was principally a town for the rich. Clearly absent in Jamestown City were the old three-room-long farmhouse forms that Fraser Neiman (1986) found at Stratford, Ivor Noël Hume (1982) seems to have discovered at Wolstenholme Town, and L. Daniel Mouer (1992, pers. comm.) has turned up packed like sardines into an early compound at Jordan's Point.

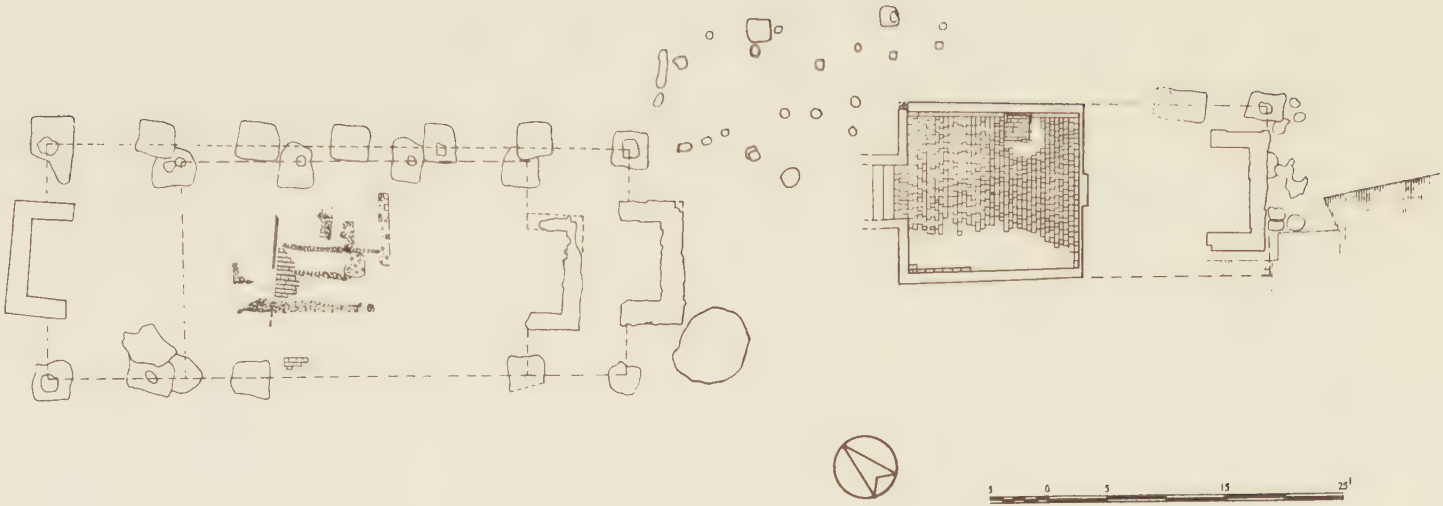

FIGURE 6. Structures 71, 41/74/77, and 40/72

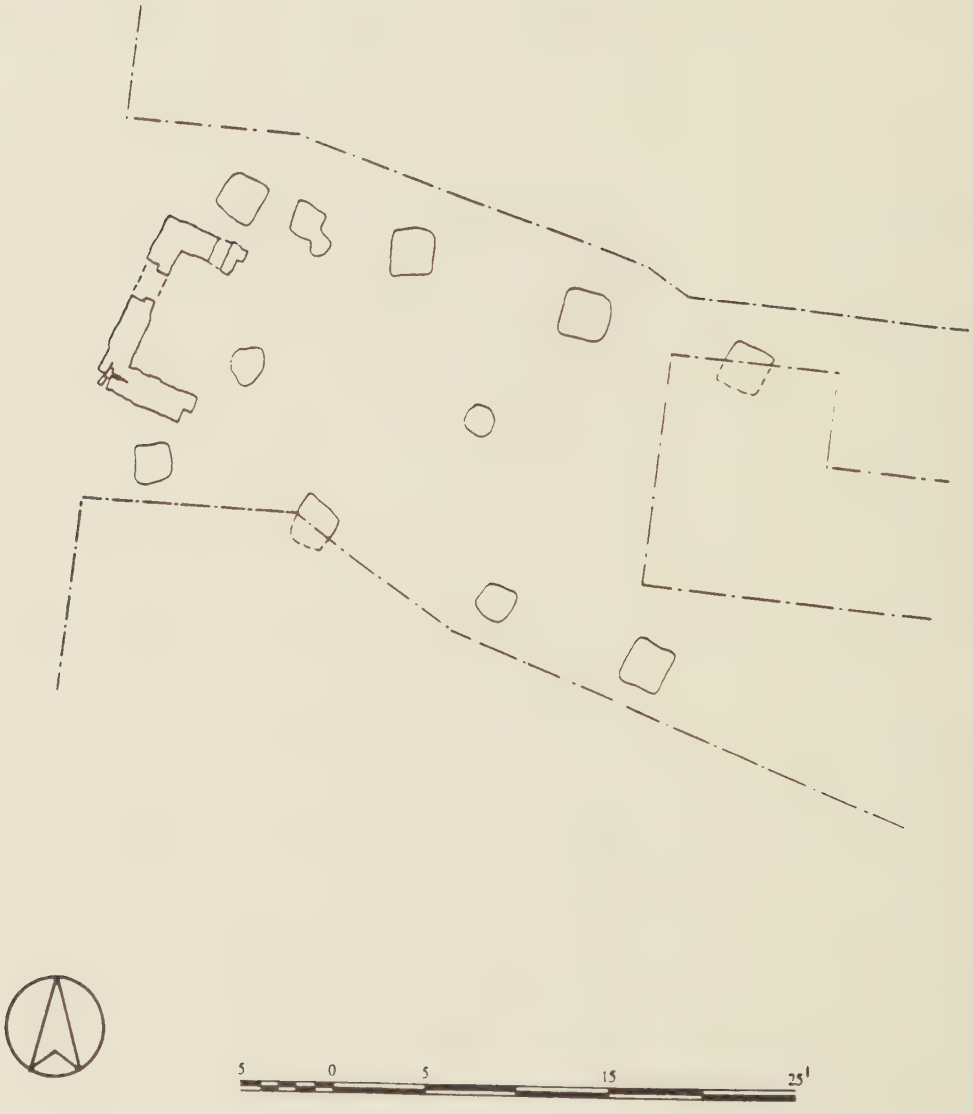

FIGURE 7. Structure 116

Archaeological Jamestown is most famous among architectural historians for its urban row houses, built primarily in the second half of the century. Unlike the so-called "Virginia House" common elsewhere, they suggest a self-conscious urbanity. Structure 17 was a fine row of at least three double-pile units which closely follow the model of 17th-century English housing for affluent urbanites, with brick gables, entrances facing the river, a lane behind, and service rooms located in the cellars (Figure 8). High-quality hardware and refined domestic artifacts recovered from the site suggest it was occupied by officials or wealthy merchants. There is no compelling evidence, archaeological or otherwise, to support the belief that one of the houses was the "First Statehouse." Though the initial date of construction is not known, it was rebuilt between 1650 and 1676 and was refenestrated after 1693. It survived until destroyed by a fire about 1720. A large 17th-century excavation of the same character, and aligned about 50 ft. to the north, suggests that a matching set of houses was intended to mirror this group across the lane, though it was never built. Four party-wall houses (S115), approximately the same size but arranged as lateral, lobby-entrance plans, were constructed across the road to the north sometime before 1676 (Figure 9). After sustaining extensive damage in the rebellion, two of these houses were remodeled with end chimneys and, in the case of the eastern house, provided with an enclosed porch. The so-called Ludwell-Statehouse group is another remarkable series of four lobby-entrance brick houses joined at the gable ends; this time provided with rear service rooms and, in at least two cases, porch entries. Connected to the east end was a much larger hall-chamber building, with chimneys and perhaps a stair tower on the rear wall, all reminiscent of Structure 112. The Jamestown excavations may, therefore, offer evidence for the nature of two statehouses, one destroyed by Bacon in 1676 and the other that burned in 1698.

All of the above, as well as the two substantially built houses (S1/2) joined by a party wall and located on the edge of Pitch and Tar Swamp well away from the town center, emphasize the seemingly contradictory nature of Jamestown's superior building. Why was a relatively modern version of the old English townhouse, born of congested environments and a desire for segregated domestic functions, employed at the borders of civilization where property of modern suburban scale was available? Creating the appearance of urbanity seems to have been a strong motivation 50 years after the first outrageous claims that the modest villages of Jamestown and Henrico were cities with streets lined by handsome houses (Hamor 1957). Certain aspects of the acts intended to force a metropolis on Virginia actually seem to have been heeded, if only briefly and by a minority of wealthy believers. The row-house ensembles may reflect the

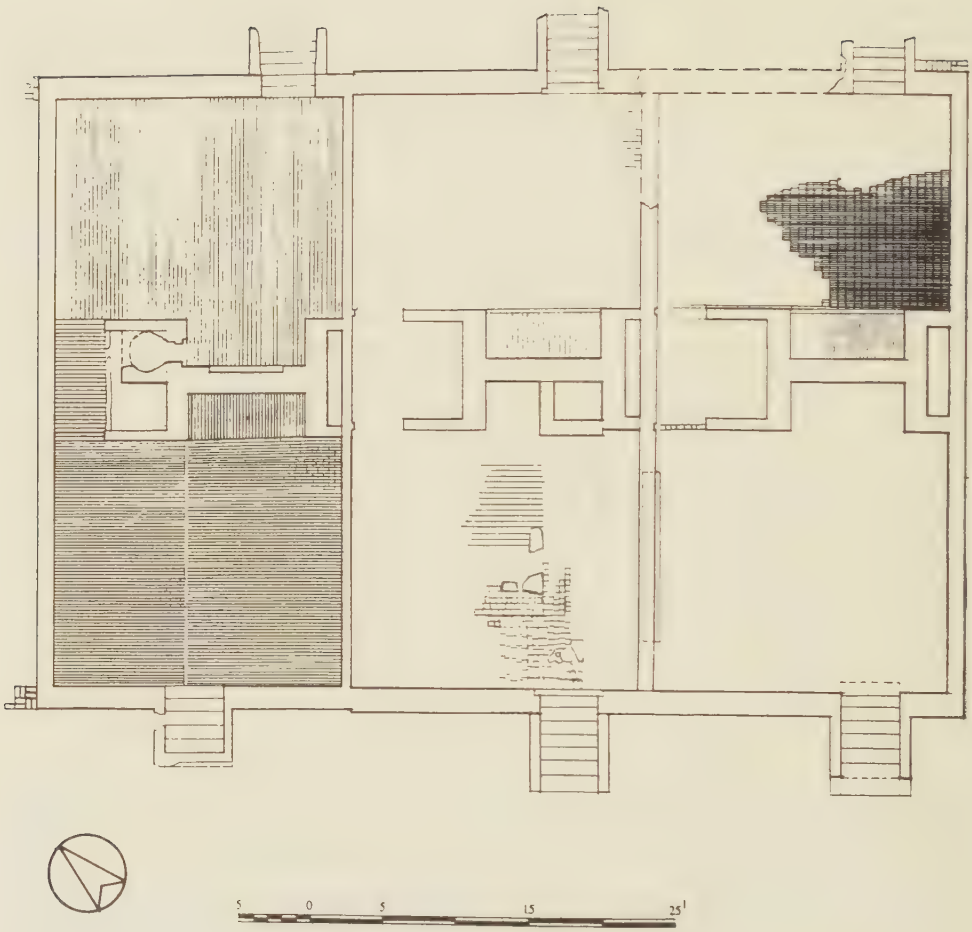

FIGURE 8. Structure 17

FIGURE 9. Structure 115

specific efforts of a small cadre of officials striving to fulfill the hapless requirements of the 1662 "Act for Building a Towne" (Reps 1972:52-54), as well as the crown's sporadic policy, since Charles I, of promoting uniformity in domestic cityscape (Summerson 1978:29-35). Just how extraordinary these urban aspirations were is underscored by the absence of comparable efforts throughout the history of the more grandly planned 18th-century capitals of Annapolis and Williamsburg. Simply in terms of scale and substance, the rows were not matched by Williamsburg houses until the 1750s. Extensive construction of row houses did not commence in most Anglo-American towns, and even in cities, until after the Revolution. In Jamestown the row houses never grew to form even the ragtag streetscapes that eventually characterized its 18th-century successors. Brash brick edifices continued to stand raw and alone on large lots, separated by more vernacular neighbors strung along the old capital's uneven streets.

FUNCTIONAL DIVERSITY

Archaeological features, architectural remains, and associated artifacts also provide clues to the functions that Jamestown served as a social and economic center, particularly in the last half of the 17th century. Domestic life, commercial activities, small-scale industrial enterprise, and public functions are all evident, often overlapping on a site. Only the chief public services were necessarily confined to the colony's capital, but the concentration of activities there distinguished Jamestown from the rest of the 17th-century Chesapeake.

A large percentage of the excavated structures were dwellings, reflecting lifestyles from genteel to rudimentary. The big U-shaped house (S44/53/138), for example, represents the taste and affluence of a rich family accustomed to amenities that required a well-equipped service wing, several outbuildings, and a formal garden. Such a lifestyle employed personal servants, cooks, grooms, and gardeners, though probably not in roles as sharply defined as they would later become.

A simpler but still affluent life is suggested by the remains of the house known as Structure 41/74/77 and its probable outbuilding, Structure 40/72. Artifacts located in or near these buildings indicate domestic use dating to the late 17th century; yet, the house had a passage separating hall and chamber, among the earliest known Virginia examples of a central-passage plan. The existence of a separate service building may denote the presence of slaves or white servants and at least opens the possibility that they were engaged in home industries. Such "townsteads" stood cheek by jowl at Jamestown with urban townhouses like

Structure 31, in which domestic activities were performed in the cellars. On the other hand, row houses without work fireplaces in ancillary spaces at the four substantial brick buildings comprising Structure 115 are important because they suggest that cooking was being done upstairs in the halls, at least some of which were finished with plaster. These houses provided less segregated accommodation than Structure 17, where we assume servants or wives labored in the cellars. Given affluent Virginians' increasing proclivity to distance themselves from the social inferiors who cooked their meals, their service arrangements seem all the more representative of English building tradition not yet creolized by New World race relations.

Residential and domestic functions were sometimes joined with commercial activities, particularly tavern-keeping, mercantile storage, and retailing. A rambling four-room-long tavern (S19 A/B) situated on the road leading into Jamestown is reminiscent of later Chesapeake taverns, like John Marot's 1705 Williamsburg ordinary. Both had rooms arranged as though two conventional houses were strung together rather than being reordered to facilitate a specialized configuration of rooming and feeding functions. The southern section of the Jamestown example was a lobby-entrance structure with both first-floor rooms and entry paved with floor tiles, while the northern block had two rooms resembling a heated hall and unheated parlor, both with raised wood floors — all apparently built in a single campaign as early as the mid-1660s (Figure 10). The unspecialized, interchangeable quality of taverns and housing, in fact, is well illustrated by this example. If not for unusually high quantities of pipe and bottle fragments, as well as tiled floors providing the sort of durable surface associated with some public and service spaces (as in a wing at the U-shaped house and what we believe to be the statehouse), one might mistake this for another row house. Even with the paved floors, some or all of these rooms may have permanently housed the tavern-keeper's family and others. At least one of the houses in the three-unit, double-pile row (S17) may have functioned as a tavern as well.

Such well-built cellars as those in Structure 17 served partially as warehouses, with broad front and rear bulkheads giving access to the paved rooms below each unit. Architectural historian Mark Girouard (1990:40-41) observes that English merchants stored much of their goods in the cellars below their port-side mansions throughout the 17th and 18th centuries. On the other hand, the 52-ft. long masonry foundation of Structure 26 beside the James River probably represents a building intended solely as a warehouse, and its position may argue for less loss of Jamestown soil to erosion than is generally assumed. Framers of the 1662 town act believed they could control the movement of

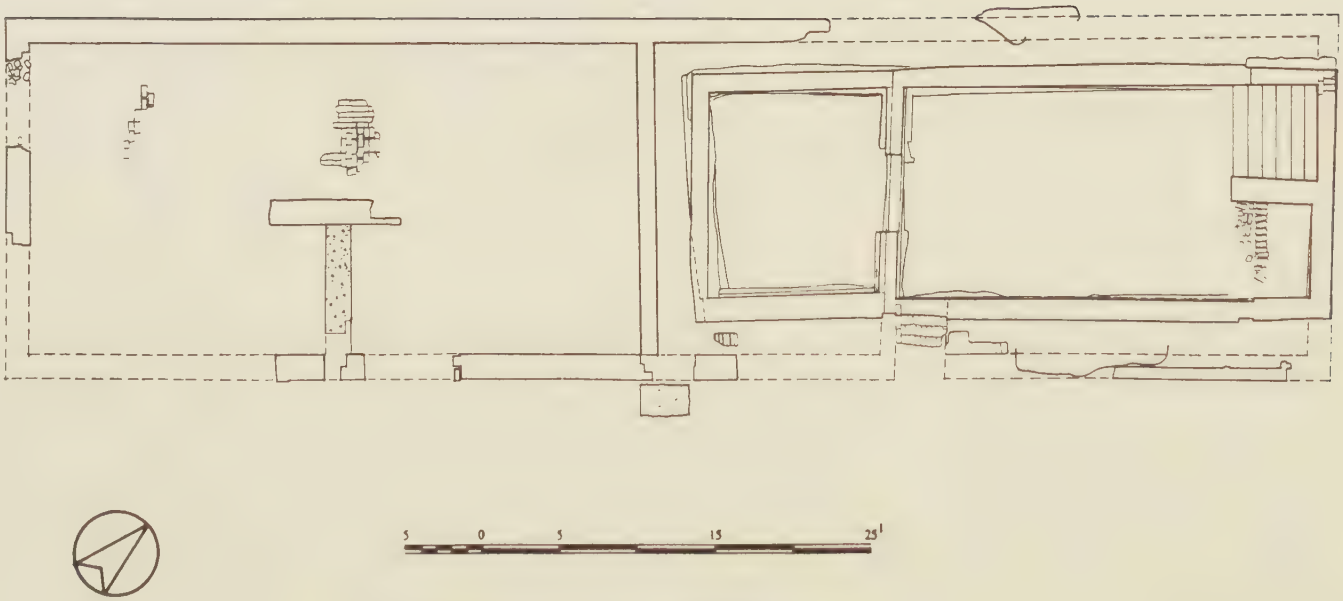

FIGURE 10. Structure 19 A/B

tobacco sufficiently to make merchants produce prescribed brick dwelling houses simply to qualify for building such warehouses at Jamestown. It is unlikely that this or other measures led to construction of many warehouses, and certainly not very far from the river.

Minor and often short-lived industrial activities were commonplace at Jamestown, scattered through the community rather than concentrated in a single area. The early, abortive glassworks on the mainland are well-known (Harrington 1990). A later structure on the island consisted of three associated kilns and a smelting pit, probably for metal-working, at a site later used for firing flat roof tiles and earthenware vessels. These were skilled trades requiring knowledgeable craftsmen. Several brick kilns have been excavated at Jamestown — no surprise — but at least one (S102) was substantial enough for repeated manufacture of bricks (Harrington 1950). A cellar (S110) at the north edge of town contained large circular boilers and likely served as a brewhouse in the second quarter of the 17th century (Figure 11). Many of the implied activities appear to have been of a service nature, suitable for a village or urban population. In the aggregate, they differ from those clustered on rural plantations.

The evolving and multi-functional character of much of Jamestown's built environment is also manifest in its public buildings. In 1663, the Virginia assembly debated "Whether it was not more profitable to purchase [a building for a statehouse] then to continue for ever at the expense, accompanied with the dishonour of all our laws being made and our judgements given in alehouses" (Hening 1823:204). The large structure with entrance tower (S112), as discussed above, probably served in its later years as the pre-rebellion statehouse. We believe that it was first constructed before 1650 with earthfast or ground-standing posts and was heavily rebuilt with brick walls, initially to create a dwelling or tavern with three rooms aligned at the front and service spaces in a rear shed. A public lockup or armory stood nearby and, in the third quarter of the century, one of the houses in the Structure 115 row seems also to have been employed as a jail (Cotter 1958:127-28). The U-shaped building, as we have seen, probably served a quasi-public function as the official residence of the governor.

Changing uses of many structures at Jamestown also reflect the town's social flux. As social relations changed in the second half of the century, buildings were renovated and reused accordingly. There is obvious evidence among the multi-unit rows for lobby-entrance houses having their foyers eliminated and central chimneys demolished in order to create new halls and chambers with fireplaces on the end walls, sometimes in concert with the addition of porch entries. These expensive modifications run parallel to or ahead of the

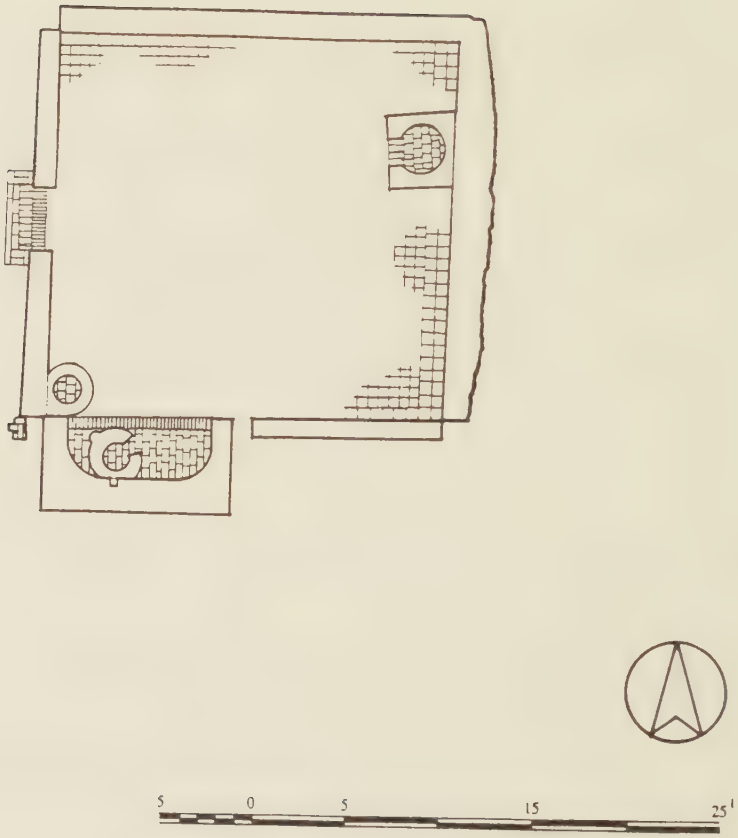

FIGURE 11. Structure 110

growth of hall-chamber houses with exterior chimneys and lobby-entrance structures in favor elsewhere in the Chesapeake. Fraser Neiman (1991) has interpreted the shift as a reflection of affluent owners' concern for surveillance in households that increasingly included slaves. Town dwellers as well as planters made the choice that otherwise is difficult to explain, and the implied presence of slaves raises the subject of changing patterns of where white and black servants lived in houses like Structure 115 and the Ludwell-Statehouse group. All the more reason for a thoughtful look at the material still hidden in the Jamestown soil.

A SCANT URBANITY

We conclude this brief report on our unfinished study of Jamestown's archaeological record with the question that has intrigued us from the outset. What made Jamestown urban — or better — was Jamestown urban? The most obvious answer is that the town-like layout of its streets, house lots, and buildings that began to evolve as the settlement outgrew the fort gave it an urban structure, though the place was never urban in scale or density when compared to the European towns that crown officials always had in mind. By mid-century there was a civic skeleton that, along with formal and vernacular European models, eventually influenced the design of Francis Nicholson's Williamsburg. Neither the 17th-century capital nor the countryside were devoid of expensive houses. Recent excavations at John Custis's Arlington on the Eastern Shore (Nicholas Luccketti 1992, pers. comm.) and the earlier ones at Jamestown make this clear. Yet, the concentration of buildings that were both expensive and so optimistically urban reveals aspirations poignantly at odds with the general nature of material life in the 17th-century Chesapeake (Carson et al. 1981) — and at odds with the atomistic impulses of most Virginians (Upton 1979). It also suggests a greater contrast between the material circumstances of rich and poor in the second half-century of English settlement in Virginia. Of course, the capital of early Virginia functioned differently than other settlements in the colony. Its population was small — disappointingly so in the eyes of many colonial administrators and later historians. Yet, its business was varied, and consequently its warehouses, merchants' dwellings, taverns, public buildings, workshops, and workers' housing concentrated on this site a mixture of people, dwellings, and workplaces in a patterned settlement unfamiliar to most of the planters and laborers who lived in the countryside.

Finally, some residents of poor old Jamestown seemed to have enjoyed the higher standards of living typical of certain city dwellers throughout the

English-speaking world. We expect that many lived as meagerly and miserably as their poor country cousins, whether or not evidence of their hovels has yet been found along Pitch and Tar Swamp. But, as we now enlarge the scope of our research to study domestic artifact assemblages in the collection and filter the documentary material through the archaeological record, there is already reason to believe that we will find evidence that Jamestown's merchants and officials participated in the emerging culture of gentility that began to refashion everyday living for men and women of their station throughout the empire. How this compares with findings from the earthfast frame homes of rich rural Virginians will be fascinating to observe. Our reevaluation will take place alongside new archaeological survey and excavation on the island. Given advances in technique and a new set of questions, we should all learn more about just what slice of Jamestown the 20th century has found, topographically and socially.

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TEMPORAL PATTERNING IN HOUSE PLANS FROM THE 17TH-CENTURY CHESAPEAKE

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INTRODUCTION

Over the past 20 years, fieldwork conducted by both archaeologists and historians of vernacular architecture has revolutionized our understanding of Anglo-American architecture in the 17th-century Chesapeake. The resulting changes in our knowledge extend to three related domains: dating, technology of construction, and house plans. The last of these topics is the subject of this essay. My primary aim here is to provide a picture of how the interiors of houses built during the 17th century were carved into usable living space and to show how the arrangement and use of that space changed over time. I will argue that house plans may be understood as an integral part of the strategies that tobacco planters used to organize work on their farms. This implies that studying house plans will give us insights into the shifting character of plantation organization and a key ingredient in it, the relationships between labor-owning planters and their servants and slaves. However, an appreciation of how the past two decades of research have affected our knowledge of 17th-century house plans requires knowing something about how the research revolution affected our knowledge of two other topics: dating and construction technology. Discoveries in all three domains were closely related and a sketch of the relationships among them serves as my point of departure.

The research revolution spawned two decades ago most conspicuously affected our knowledge of when early structures that survive to today were actually built, and of the kinds of building methods and materials that were used to construct early buildings, whether they survived or not. The revolution began with pioneering archaeological fieldwork in the early 1970s by Garry Stone (1974, 1982) at St. Mary's City, Maryland, William Kelso (1984) at Kingsmill, just outside of Williamsburg, and Norman Barka (1976) at Flowerdew Hundred, on the southside of the James near Hopewell. The building technologies revealed by excavation at these three 17th-century sites were very different from those employed in the vast majority of structures that survive from the colonial period. While extant colonial structures, like those that line the streets of Colonial Williamsburg, featured box frames or brick walls fixed atop foundations of brick, most of the newly excavated structures had wooden, earthfast foundations of one sort or another, typically consisting of vertical posts set in holes in the ground.

It was hard to ignore the contrast between the excavated earthfast structures and the far more substantially built, standing structures to which architectural historians had traditionally pointed as typical examples of domestic architecture from that period. Because archaeologists' inferences about dates were guided by simple but demonstrably reliable techniques (Harrington 1954; Noël Hume 1969), the dissimilarity encouraged a reevaluation of the dating of extant buildings and the application of more reliable means of chronological inference to them. Dendrochronology has subsequently demonstrated that nearly all the structures that architectural historians had once agreed were built in the 17th century, in fact, were built in the 18th century (Heikkenen and Edwards 1983).

Taken together, the reliably dated archaeological evidence for early architectural technology and more accurate chronological control for later standing structures enabled Chesapeake scholars to rewrite the architectural history of the region. In doing so, they were able to draw on an emerging body of new historical scholarship on the demographic, economic, and social history of the early Chesapeake (Tate and Ammerman 1979). The rich contextual knowledge provided by social historians made it possible to link the universal use of impermanent construction techniques across the 17th century to the high cost of labor and difficulties of capital accumulation in a tobacco-based frontier economy (Neiman 1978; Carson et al. 1981).

These discoveries had important implications for our knowledge of plan forms. Seventeenth-century planters' near universal use of building technologies that relied on wood foundations in direct contact with soil meant that almost no 17th-century structures survived. Standing structures offered almost no evidence

regarding the kinds of house plans used in the 17th century. Therefore, it was only possible to see what house plans employed in the early Chesapeake really looked like when archaeologists mapped the post holes that once contained the foundation posts of vanished 17th-century buildings.

Excavation revealed a pattern of change in house plan forms similar to that delineated for architectural technology. Like earthfast construction techniques, many house-plan forms found on vanished 17th-century plantations bore little resemblance to those that characterized their extant 18th-century successors. Instead of plans familiar from the streets of Williamsburg, featuring end chimneys and two rooms, supplemented with a central passage in later and larger houses, archaeologists found structures with a variety of characteristics that seemed atypical to the region in the 18th century, including multiple rooms, central chimneys, and lobby entries. Excavation also made plain that there was considerable continuity between the repertoire of house plans used by 17th-century Chesapeake planters and the regionally variable repertoires of 16th and early 17th-century farmers in England, documented by English vernacular-architectural historians (Barley 1961; Smith 1971; Mercer 1975; Smith 1980). Given this continuity, the differences between 17th and 18th-century Chesapeake repertoires demanded explanation. It was obvious that any satisfactory answer must involve processes operating in the Chesapeake during the 17th century.

A satisfactory causal explanation has yet to be developed. However, there is a general consensus, developed during the 1970s and derived from a novel interpretation by Mercer (1975) of 16th and 17th-century English vernacular farmhouse plans, that the change should be understood in terms of social relationships between plantation owners and their laborers (Carson 1978, 1986; Neiman 1978, 1980, 1990; Upton 1980, 1982). It is argued that plan changes were correlated with the removal of spaces for housing laborers — first white indentured servants, then enslaved Africans — and their work from planters' houses and their placement in separate outbuildings.

If this general line of argument points in a productive research direction, its current state of development offers opportunities for improvement in at least three areas, which are considered successively in the remainder of this paper. First, Chesapeake archaeologists have paid little explicit attention to the concrete mechanisms that deterministically link artifacts, the patterns of behavior involved in their use, and the characteristics of the social and natural environments with which artifacts and behavior together interact. While space constraints do not allow a comprehensive treatment of this theoretical problem here, it is evident that in order to wring meaning from the inert, static archaeological record, we must bring to it some preliminary notions about the pressures that cause

correlations between artifact form — in this case the arrangement of living space — and its use. I begin then with a sketch of some principles that appear to be useful in making sense of architectural variation. If these principles by no means exhaust the theoretical tools we will eventually need to make sense of Chesapeake architectural change, they offer a useful starting place.

Second, archaeologists and architectural historians have so far relied largely on impressionistic and essentialist (Mayr 1959; Sober 1984) characterizations of 17th and 18th-century architectural repertoires as they are represented in the archaeological record. I hope to break with this tradition and begin the process of systematically measuring variation in house plans (O'Brien and Holland 1990) across the first hundred years of English settlement to ca. 1720. The application of a new, more systematic approach to house-plan variation reveals the existence of interesting and hitherto unnoticed temporal patterns, which in concert with the architectural theory outlined in the first section and some more general notions about human social strategies, may in turn point the way to a more complete understanding of the complex dynamics of which the houses were once a part.

Third, Chesapeake archaeologists have naively relied on the documentary record to supplement their imprecise characterizations of architectural variation in the archaeological record. I will show that the picture that emerges from a systematic review of the archaeological evidence is not congruent with the picture derived from documents (Upton 1980). The contradiction, discussed in the final section of this paper, is important because documentary evidence for architectural variation has been an important ingredient in some recent prominent archaeological treatments of social dynamics in the early Chesapeake (Deetz 1988; Emerson 1988).

UNDERSTANDING VARIATION

House plans, like other artifacts, are integral parts of the behavioral strategies individuals use in making a living and reproducing. Part of the archaeologist's task is to make inferences about the non-observable characteristics of those strategies based on the "hard parts" (Dunnell 1989) excavated in the archaeological record. Archaeological inference depends on elucidating the complex causal nexus connecting formal variation in artifacts to behavioral variation. One route to making inferences is to study the designs of individual hard parts from an engineering perspective, attempting to understand how some designs are superior in the context of the local natural and social environment in which they occur. Inferred uses are those that, in concert with the design

characteristics of artifacts, constituted strategies that afforded individuals the best available means of making a living and reproducing in the prevailing environmental circumstances (Neiman 1990:198-203).

How should house-plan design variation be measured? A house, like any other object, has an enormous number of characteristics which we might attend. How can we single out from among them a few that will be informative? As the evolutionary biologist Richard Lewontin (1974) reminds us, you cannot go out and describe the world any old way you please and then sit back and demand an explanation. Rather, there is a continuous interaction between inventing and refining ways of measuring phenomena and the development of theory, a set of notions about how those measured phenomena should be explained. Translated to an archaeological context, Lewontin's admonition means that we are unlikely to be able to infer what formal variation in the archaeological record means unless we can first describe it in terms that are in some sense compatible with theory. In other words, construction of a means to measure house plans depends on having some notions about the factors governing the use and arrangement of living space on domestic sites.

Over the past decade or so archaeologists have begun to document ethnographically what appear to be pan-human rules that govern the way in which individual activities that are part of a group's behavioral repertoire are located in space in relationship to one another on domestic sites. This is not the place to review this work and the growing literature associated with it. Instead I offer a tentative sketch of the proximate causes of the spatial segregation of certain activities into what can be called special and general activity areas (Yellen 1977; Binford 1983, 1987; Hitchcock 1987; O'Connell 1987; O'Connell et al. 1991).

The crucial variable that controls activity segregation in space is the extent to which activities interfere with one another. Interference is likely when the objects involved in activities take up large amounts of space, or processing them generates large amounts of refuse, or the activity itself requires large amounts of uninterrupted time. Each of these factors, singly or in concert, renders simultaneous use of the same space for other purposes costly in time or effort. Thus, there will be a long-term payoff to the expenditure of additional energy to cover travel costs incurred in the location and pursuit of such activities at some distance away from the area in which most other activities occur.

Special activity areas will, for the most part, be locations at which bulk processing of resources into consumable form is carried out, as such processing is likely to require lots of space, demand large chunks of time, and generate considerable refuse. Special activity areas will also include areas where bulk-

processed items are stored, because, by definition, stored items occupy space over extended periods of time. We can expect that the size of special activity areas will be a function of the bulk of the items being handled or of the refuse they generate, while the distance such areas are located from general activity areas will be a function of access frequency.

On the other hand, additional energy will not be expended to remove to special areas activities that require smaller amounts of space, generate little refuse, or have short durations. These activities will tend to occur together in the same general activity area. As a result, general activity areas can be expected to house pursuits like the preparation of food for immediate consumption and interaction with relatives and other social allies. General activity areas also will include sleeping areas which may themselves be set off from communally used areas.

Special activity areas are especially prevalent among groups relying for year-round subsistence on resources that are only available on a seasonal basis, and then typically in great quantity. The seasonal availability of large quantities makes bulk processing for storage an adaptive strategy, because it means that resources can be consumed throughout the year. Agricultural systems such as those of the early Chesapeake are a prime example. Here bulk processing and storage of agricultural products were a crucial part of making a living. Some examples of key agricultural products from the Chesapeake include:

1. Tobacco. The high-bulk cash crop which served as the foundation of the Chesapeake export economy required special-purpose facilities for drying, packing dried leaves for shipment, and for storage (Carr et al. 1991:63-65).

2. Maize. This high-bulk food staple required shucking and shelling, both space-extensive tasks, and long-term storage. In addition, processing of the dried kernels for consumption by manual pounding was a difficult and time-consuming task (Carr et al. 1991:71).

3. Primary animal products. Faunal assemblages attest to the importance of cows and pigs as meat sources (Miller 1984). The large size of individuals from both species means butchery is messy and requires space. Large package size also requires preservation and storage upon slaughter if meat is not to be wasted.

4. Secondary animal products. Cow's milk, a traditional protein staple among English peasants, required intensive processing for preservation as cheese and butter (Miller 1984; Carr et al. 1991:73).

CLASSIFICATION

The foregoing argument offers guidance in building a classification to measure variation in the interior arrangement of dwellings in a way that is relevant to the organization of activities within them. Clearly one would like to be able to analyze entire structures, both as originally built and as they changed over the course of an occupation. Unfortunately, the lack of effort devoted to the construction of fine-grained intra-site chronologies at most sites and, in many cases, to the systematic collection of data necessary to construct such chronologies in the first place makes this impossible. Hence, in what follows, we must be content with analyzing only the rectangular core of each structure, on the assumption that, at least in most cases, this core dates to the initial phase of each occupation.

Using the notions developed above about the partitioning and use of space, three aspects of variation in the layout of the rectangular core of a structure can be singled out. These dimensions of design variation can be related to parallel dimensions of behavioral variation, with the help of the special-general activity area distinction. The first is size. Other things being equal, size should scale with the extent to which special activity areas are located in a single structure along with general activity areas. The measure of size used here is the number of "unit spaces" comprising the core of a building, a measure designed to capture the minimum number of major axial divisions that constrained movement within it. Unit spaces are defined as follows: Where the physical remains of axial partitions exist in the archaeological record (such as fireplaces and post holes), each partitioned space they separate is counted as a unit. There is no minimum on the length of a unit defined in terms of the archaeological remains of partitions. However, there is a maximum limit, arbitrarily set at 1.33 times the structure's width (w). An unpartitioned space less than 1.33w in length is 1 unit long. A space whose length lies from 1.33w up to 2.66w is 2 units long. A space from 2.66w up to 4w is 3 units long, and so forth.

The second aspect of house-plan variation considered here is entry type. When special activity areas are located within dwellings, we can expect access to them from exterior spaces, from which raw products are brought for processing, to be unobstructed. Hence, it is useful to distinguish two types of

entry: direct entry, in which a door opens directly into a unit space, and lobby entry in which a door opens onto a lobby (against the side of a fireplace). The lobby in turn opens onto unit spaces to either side. For houses with a single principal entry four modes are recognized: direct entry into an end unit (E), direct entry into a middle unit (M), indirect entry into a lobby (L), and unknown (X). Three additional modes are necessary to accommodate plans that had multiple entries: lobby and end entry (LE), lobby and middle room entry (LM), and middle and end room entry (ME).

Finally, we need to consider variation in the provision of heat. Larger-scale bulk processing activities pursued in the Chesapeake (such as tobacco stripping and corn grinding) do not require heat. A few smaller-scale bulk processing activities do (such as potting meat). However, hearths are far more typical of general activity areas. This raises the possibility that at least some structures with multiple hearths may have housed two general activity areas whose use was dominated by different social groups, in our case planters and laborers respectively. There are four modes describing fireplace placement: end (E), center (C), unknown (X), and both end and center (EC).

Readers who are familiar with the literature on vernacular English and Anglo-American farmhouse plans, whether written by archaeologists or architectural historians, will immediately note that this approach to house plan variation represents a departure from traditional practice. Instead of thinking explicitly in terms of dimensions of design variation, Chesapeake archaeologists, following the lead of their colleagues in architectural history, have measured house plans by forcing them into a small number of groups to which they have given names like "Virginia House," "cross-passage house," or "lobby-entry house." This sort of typological practice is widely shared across archaeological research communities. It is found not only among historical archaeologists of the Chesapeake, but is also the basis for traditional pottery typologies used by Americanist prehistorians. Although such devices do have their uses (Teltser 1992), they also have two major flaws that are worth noting here. First, dimensions of variation that seem important in the definition of one group are ignored in the definition of another, with no justification. For example, number of rooms (2), entry location (directly into one of the rooms), and fireplace location (two end fireplaces) all appear to figure in the definition of a "Virginia House." But only entry location seems important in the case of the "cross-passage house." These kinds of covert incongruities end up disguising in uncontrolled ways potentially informative variation in house plans.

Note that the next-to-last sentence contains the phrase "location <u>seems</u> important." This points to a second problem with the current approach: there

is no explicit list of necessary and sufficient conditions for including a particular plan in any group. Instead of a list of dimensions of variation that are being attended, the possible states they may assume, and specification of which combinations of modes define membership in which group, we are given illustrations of a typical example and left to intuit both which attributes make it typical and, more troubling, just how to treat a house that is similar to the prototype, but not identical. For example, consider the house illustrated in Figure 1. Its two rooms, and direct entry into one of them, make it look a bit like the prototypical Virgina House. But it does not quite fit here because it has a single central fireplace, not two fireplaces located on the gable ends. Central fireplaces are found in lobby entry houses, but our example does not fit here either because it lacks a lobby entry. Perhaps it can be placed in the cross-passage group. There are problems here too, because the prototype cross-passage house has three rooms, not two. Another option would be to create a new group, just for this house. But having done this, we would be faced with the problem of deciding whether further anomalous examples belonged. In other words, under current practice it is difficult to know what aspects of architectural variation are being measured when houses are classified.

THE SAMPLE

A word about the sample of houses is in order. The sample I have managed to assemble is just that: the sample I have managed to assemble. It includes 65 structures documented through excavation and architectural fieldwork. It is drawn from published sources, the gray literature, and unpublished copies of site plans furnished by excavators, to whom I am extremely grateful. Each structure was assigned to a 20-year period on the basis of its construction date. Initial occupation dates for the archaeological sites, based on artifacts and documentary evidence, are those supplied by the excavators. Most of the data for the early 18th century are from extant structures. Given the shaky status of chronological inference that continues to characterize much architectural history, I have only included extant structures for which there is dendrochronological evidence (Heikkenen and Edwards 1983).

RESULTS

We now have in hand tools to measure variation, designed with the help of some general notions that will help us infer, in a preliminary way, what the measurements might mean. The temporal patterns that emerge from applying our

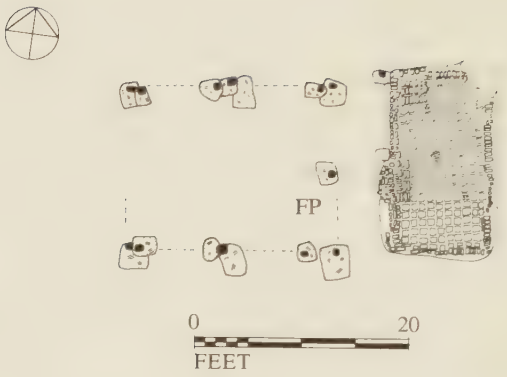

FIGURE 1. Plan of the Principal Dwelling (Structure A) at the Hampton University Site (44HT55) (Edwards et al. 1989)

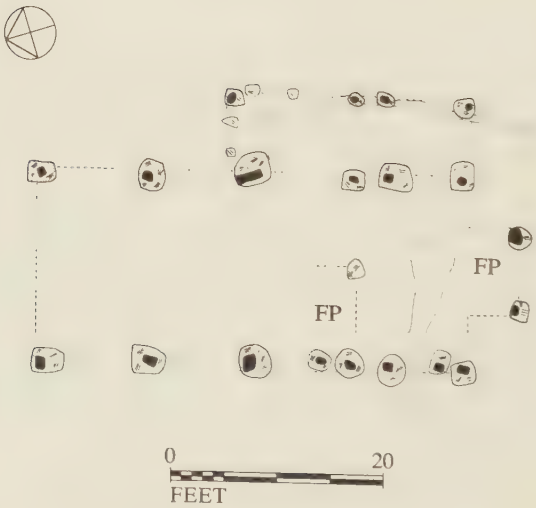

Figure 2. Plan of the Principal Dwelling (Structure C2) at Site A, Martin's Hundred (44JC116) (Noël Hume 1982 and field drawings on file at the Colonial Williamsburg Foundation)

measurement tools to the sample of 65 structures documented through excavation and architectural fieldwork are described below, along with some tentative inferences about their behavioral meaning.

Consider first the measure of size. It is evident that the number of unit spaces, a figure that should be correlated with the number of rooms in the core, declined over time (Table 1). Four-unit houses disappear in the earliest decades of settlement, while three-unit houses disappear after 1680. At a general level, the decrease in number of unit spaces can be seen as the result of selection in favor of the separation of general and special activity areas and the relegation of the latter to separate, special purpose structures or yard areas.

A more detailed look reveals that the story is not so simple. As the layout of structures around them attests, the four-unit structures on pre-1622 sites were parts of organizational strategies that differed fundamentally from the single household-based settlements, universal in later decades. Site C at Martin's Hundred offers a nice example. At Site C, Noël Hume excavated a 15-x-60-ft., four-unit structure, surrounded by at least three smaller houses, situated from 200 to 300 ft. away. The layout suggests that the four-unit structure, along with an adjacent barn, served as a centralized bulk processing and storage facility, shared by the surrounding households. Similar four-unit buildings have been recently excavated at Jordan's Point, but details are not available at this writing (L. Daniel Mouer 1992, pers. comm.).

The disappearance of such four-unit structures appears to be closely related to the demise of centrally organized settlements, incorporating multiple households (called "particular plantations" by contemporaries) and their replacement by farms based around single households. On those single household farms, smaller scale processing remained a feature of some of the houses in our sample, those with three-unit plans, until the last decades of the century. After that two-unit plans, many of which appear to be general activity areas partitioned into living and sleeping spaces, predominate.

Entry types exhibit a more complex pattern of change (Table 2). Note how the number of structures in which the type of entry is unknown decreases over time. This is a function of fading frontier conditions which had promoted very ephemeral architectural technology during the first decades of settlement. Later 17th-century houses more frequently included exterior doors or associated features that were substantial enough to leave an archaeological trace. More important for our purposes is the fact that direct entries, into either an end or middle room, were quite common early on, but decrease in frequency up to about 1680. However, indirect, lobby entries become more popular during this same period. These trends imply that for much of the century, access to interior

	Number of Units				
Period	1	2	3	4	Total
< 1623	1	6	5	3	15
1623-1639		11	5	1	17
1640-1659		7	2		9
1660-1679		7	3		10
1680-1699		3			3
1700-1720	1	10			11

TABLE 1. Number of Units in the Sample of Excavated and Extant Structures By Time Period. See text for unit definition.

	Entry						
Period	Unknown	End	Middle	Middle & End	Lobby	Middle & Lobby	Total
< 1623	14	1					15
1623-1639	7	6	2		1	1	17
1640-1659		3	2		4		9
1660-1679	1	4		1	3	1	10
1680-1699		2			1		3
1700-1720	1	10					11

TABLE 2. Entries in the Sample of Excavated and Extant Structures By Time Period

	Fireplace Location				
Period	Unknown	End	Center	Center & End	Total
< 1623	9	3	3		15
1623-1639	4	6	5	2	17
1640-1659		4	4	1	9
1660-1679	1	4	4	1	10
1680-1699		2	1		3
1700-1720	1	10			11

TABLE 3. Fireplace Location in the Sample of Excavated and Extant Structures by Time Period

spaces of houses was becoming increasingly less efficient. This makes sense if bulk processing and storage activities at successively smaller scales were being removed from close proximity to general activity, domestic space during this time. However, sometime after 1680, the trend in entry location was reversed and lobby entries are nearly entirely eclipsed by direct entries.

Fireplace location is the third dimension of variation considered here (Table 3). The fragile architectural technology of the first years of settlement is again reflected in the large number of structures for which fireplace locations are unknown. For most of the rest of the century, central and end fireplaces are about equally popular, but after 1680 end chimneys predominate, a change that parallels the disappearance of lobby entries.

The significance of shifts in entry and fireplace location is best illuminated by cross-tabulating, by time period, the occurrence of modes belonging to each dimension of variation. The resulting paradigmatic classification (Dunnell 1971) yields 20 plan types for which examples occur in the sample (Table 4). What is of particular interest in this analysis is the shifting character of plans and organizational strategies between 1622 and 1680.

Consider first, plan forms that were favored from the late 1620s to the 1640s, but were not successful later. They had direct entries into a large room whose configuration suggests it was either a bulk processing location or a second, heated general activity area, adjacent to a special activity area, and therefore used with variable frequency by laborers. An example of the former is the Hampton University site, located on what is today the campus of Hampton University (Edwards et al. 1989). Although the identity of the occupants of this site is unknown, its size and the accompanying artifact inventory point to their prosperity. The 16-x-35-ft., two-unit dwelling at this site had a direct entry into a large, unheated outer room (see Figure 1). Beneath the outer room lay a brick-lined basement with two sets of stairs giving access to it from both the exterior of the building and the unheated lower room. The central fireplace in the structure heated only the inner room, which the foregoing arguments suggest was a general activity area where family members both ate and slept. The unheated outer room of the dwelling was a work room for bulk processing, with an associated storage area below. Within a scant 20 ft. of the house were several generations of two-unit outbuildings which apparently served as housing for servants and additional special activity space.

A different arrangement can be found at Site A at Martin's Hundred, the likely home of William Harwood, the governor of the settlement (Noël Hume 1982). Here we encounter a 18.5-x-40-ft. house with a three-unit plan having direct entry into a heated end room (Figure 2). The heated end room was served

Period	Fireplace:	E	E	X	C	X	E	E	C	X	C	CE	C	C	C	CE	CE	E	C	C	Total
	Units:	2	1	2	2	3	2	3	3	4	2	3	3	4	3	3	3	3	2	3	
	Entry:	E	E	X	X	X	X	X	X	X	E	E	M	M	L	ML	M	M	L	ME	
< 1623			1	4	1	2	1	1	2	3											15
1623-1639		4		3	1	1	2				1	1	1	1	1	1					17
1640-1659		3															1	1	4		9
1660-1679		4		1											1	1			2	1	10
1680-1699		2																	1		3
1700-1720		9	1	1																	11

TABLE 4. Paradigmatic Classification of Sampled Excavated and Extant Structures by Time Period. See text for explanation.

by two doors, directly opposite one another in the side walls, whose presence is betrayed by post holes and molds for the door posts, not only in both sides of the core but also in the small shed attached to it. There were apparently two inner rooms, the middle one heated by a fireplace whose back wall formed the partition between it and the outer heated room. It appears that the two inner rooms served as a general activity area for family members, divided between a heated living area and an unheated space for sleeping. The use of the heated end room is more ambiguous. Its direct access to the yard areas on either side of the house suggest a special activity area in which laborers worked. The presence of the fireplace may indicate use as a living area for laborers as well. If this is correct, then at Site A more bulk processing was done in outbuildings than at Hampton.

It is clear from these two examples that there was considerable synchronic variability in plantation organization. Explaining it is a task for the future. However, both these plans appear to represent arrangements in which laborers' work or living space was adjacent to their owners'. As would be expected in this situation, there was easy access from yard areas to general activity or special activity areas that were used by laborers within the principal dwelling.

After 1640 a variety of three-unit plans were built; however, many of them share design features that suggest lower servant access frequency to interior spaces. The most obvious of these characteristics is the indirect, lobby entry. An example from the 1660-1680 period is the Hallowes site in Westmoreland County (Buchannan and Heite 1971). The owner of the land and probable occupant of the site was Restitute Whiston Steele, the grandchild and heir of John Hallowes, who started his career as a servant, but accumulated over 5,000 acres of land and became a "gentleman" and sheriff of the county before his death in 1657. The most eye-catching aspect of this 20-x-50-ft. dwelling is the fact that it was fortified. Two bastions, made of ditch-set wooden (probably split-rail) uprights, were placed on diagonally opposite corners of the house (Figure 3). However, more subtle design features are of interest here.

The dwelling itself contained an H-shaped fireplace foundation of brick which was not centered on either the long or short axis of the dwelling. The asymmetrical placement of the fireplace along the long axis makes the larger area to one side of it a two-unit space which was likely partitioned into a heated room and a smaller unheated space. A second full-sized room lay on the other side of the fireplace. The fireplace was constructed closer to one side wall to make space for the entry lobby in the opposite side wall. Apparently the small, unheated room served as a special activity area used by laborers. If so, then the heated room adjacent to it may have served as a general activity area traversed,

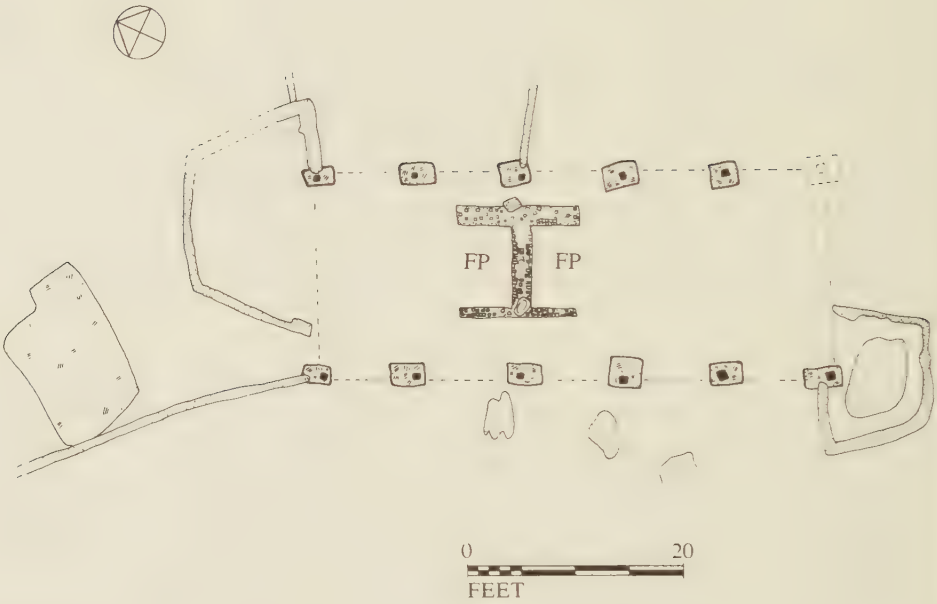

FIGURE 3. Plan of the Principal Dwelling at the Hallowes Site (44WM6), Westmoreland County (Buchannan and Heite 1971)

if not regularly used, by laborers, while the heated room on the other side of the fireplace served as a general activity area whose use was dominated by family members.

Two features of this arrangement are noteworthy in comparison to the plans on earlier sites. First, the unheated room was separated from outdoors not only by the lobby entry, but also by a heated room. This indicates lowered access frequency for laborers from outside the dwelling and decreased frequency of bulk processing and storage within the dwelling itself. Second, the lobby allowed family members private access to their end of the house, suggesting decreased contact frequency between the two social groups.

Most lobby entry plans built from 1640 to 1680 had only two units in the core, both of them heated. A good example from the early part of this period is the principal dwelling at the Littletown (Pettus) site (Kelso 1984). The house was built around 1640 and occupied for most of the remainder of the century by Colonel Thomas Pettus, a member of the Governor's Council. It was roughly the same size as the Hallowes dwelling, but here the fireplace, whose location was marked by two small patches of brick rubble that had survived plowing, was centered on the long axis of the dwelling, dividing it into two equal-sized, heated rooms (Figure 4). This arrangement is compatible with use of the core as a general activity area by family members, perhaps with one of the two rooms used for sleeping. Bulk processing and storage spaces, along with laborer housing, were located in outbuildings or appendages to the core. A small semi-subterranean storage area, floored with tiles, was located in a heated appendage on the back of the house. A second, large heated structure with a cellar beneath half of it, situated just off a gable end of the dwelling, may have housed laborers and some aspects of their work.

What were the practical advantages for which new plan forms were favored during the 1640-80 period? There were two. The first has already been noted above. Reducing the frequency and scale of bulk processing and storage taking place within dwellings reduced the amount of interference from household activities and thus fostered gains in laborer productivity. A second practical effect revolved around the decline in the frequency of access for laborers to the dwelling, or those portions of it that were used by family members, manifest in the physical segregation of laborer living and working space. This can be seen as one ingredient in a larger strategy aimed at lowering costs associated with laborer maintenance, which also included providing less costly diets and living conditions. From this perspective, it may be no coincidence that the only archaeological indication for divergence in the quality of meat diets between planters and their laborers, proposed by Henry Miller (1988) on the basis of

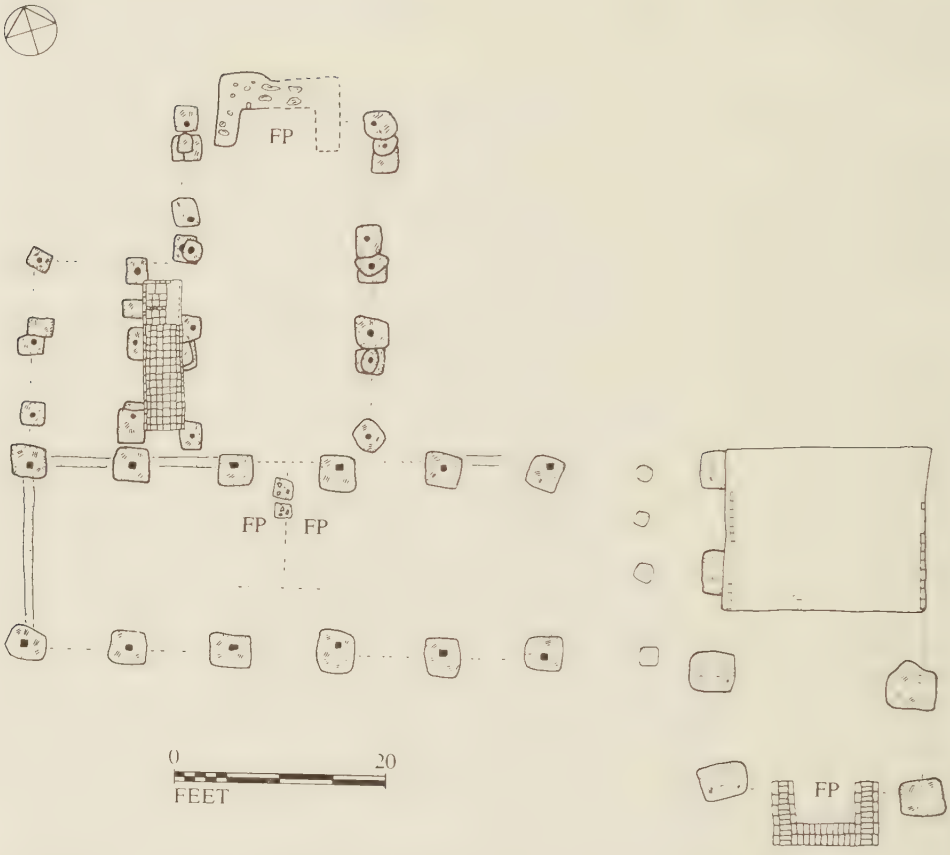

Figure 4. Plan of the Principal Dwelling at the Littletown (Pettus) Site (44JC33), Kingsmill (field drawings from the Virginia Department of Historic Resources, Richmond)

faunal data from the Drummond site (44JC43), dates to the last quarter of the century. Plantation management strategies that promoted laborer productivity and reduced laborer cost were increasingly favored among labor-owning planters as the century wore on and their numbers grew, resource competition among them increased, and tobacco prices declined.

Given the direction of these trends, the pattern evident in the sample after 1680 seems puzzling. On the one hand, three-unit plans disappear entirely. This change is compatible with earlier developments, indicating the frequency of bulk processing and storage activities in dwellings continued to decline in the last decades of the 17th century. On the other hand, lobby entries disappear from the sample as well and are replaced by direct entries, suggesting increased frequency of access for laborers to interior spaces. What are we to make of these two contradictory inferences? One possibility is that the forces invoked in the theoretical framework we have found useful so far were important determinants of the trajectory of change for much of the century, but that additional forces, not dealt with yet, came into play as the century drew to a close.

The question that needs to be answered is: why after increasing in frequency for most of the century did lobby entries and the double, centrally located fireplaces that are associated with them, drop out of the repertoire entirely? Why, after 1680, is our sample dominated once again by direct-entry plans, here in the end-chimney, two unit incarnation? One hypothesis that fits the evidence suggests that the fundamental disadvantage of the lobby entry was that it made monitoring access to the house difficult for its occupants. The lobby prevented individuals located in either of the two rooms from being able to observe and hence control access to the other. The two-unit, direct-entry plan did not share this defect. Individuals in the outer room could see anyone entering it and occupants of the inner room could observe the outer room through the connecting door. The advantage of the direct-entry plan lay in the ease with which surveillance of traffic through the house could be conducted.

But this inference raises yet another question. Why was surveillance now at a premium, rather than obstructed access? Here we need to be specific about the additional forces at work as the century drew to a close. A very promising hypothesis draws on convergent advances in evolutionary theory and cognitive psychology in our understanding of reciprocal altruism. The ability of individuals to cooperate for mutual benefit requires cognitive mechanisms for detecting cheating among social partners and retaliating against it (Trivers 1971; Axelrod and Hamilton 1981; Axelrod 1984). Cheating here refers to attempts by one individual to reap benefits from a social interaction with another individual, without repaying the other for the cost he or she incurs. In theory,

social interactions will be governed by something like "tit-for-tat" reciprocity, in which individuals reciprocate cooperation from others, but punish individuals who defect in social interactions. There is good experimental evidence that the cognitive rules used by humans conform to these expectations (Cosmides 1989; Cosmides and Tooby 1989).

From this perspective, the design features of house plans that made surveillance easier and more effective were favored in the context of an increase in the likelihood of tit-for-tat retaliation by laborers against their owners toward the end of the century. To the extent that the level of retaliation against social defectors scales with the cost of defections to victims, we can expect laborer retaliation against owners to have increased in frequency and severity toward the end of the century for two reasons. First, the cost-reduction strategies that had been spreading among planters for most of the century were increasingly recognized as defections by laborers. Second, and arguably of greater importance, those laborers were increasingly likely to be newly enslaved Africans (Menard 1977). Increased laborer retaliation generated sorting pressures on those aspects of planter production strategies that affected the probability of surreptitious household resource appropriation and use by laborers. Once plantations with laborer-specific general and special activity areas had become common, surveillance became the key to further productive efficiency, mitigating the adverse economic effects on household resources.

DOCUMENTARY EVIDENCE

I now want to turn to a brief consideration of what documents have to tell us about changes in the arrangement and use of space during this period. The only systematic source of evidence on the topic is room-by-room probate inventories. In his dissertation, Dell Upton (1980) systematically surveyed the extant room-by-room inventories from Virginia, recording the names given to rooms in each estate. From these data he produced several summaries of the frequency with which different room names occur. The most important of these was a measure Upton called "house size," a function of the number of named spaces listed in each inventory. Upton computed house sizes, roughly by decade, for the period 1640 to 1720. Mean house size increased from 1640 to 1670, peaked in the 1670s and 1680s and then underwent a steady decline up to 1720. A plot of change in the cumulative frequency distribution of houses in different size classes reveals that the pattern is largely due to shifts in the frequency of houses with greater than eight rooms, which enjoyed peak frequency in the 1680s (Figure 5).

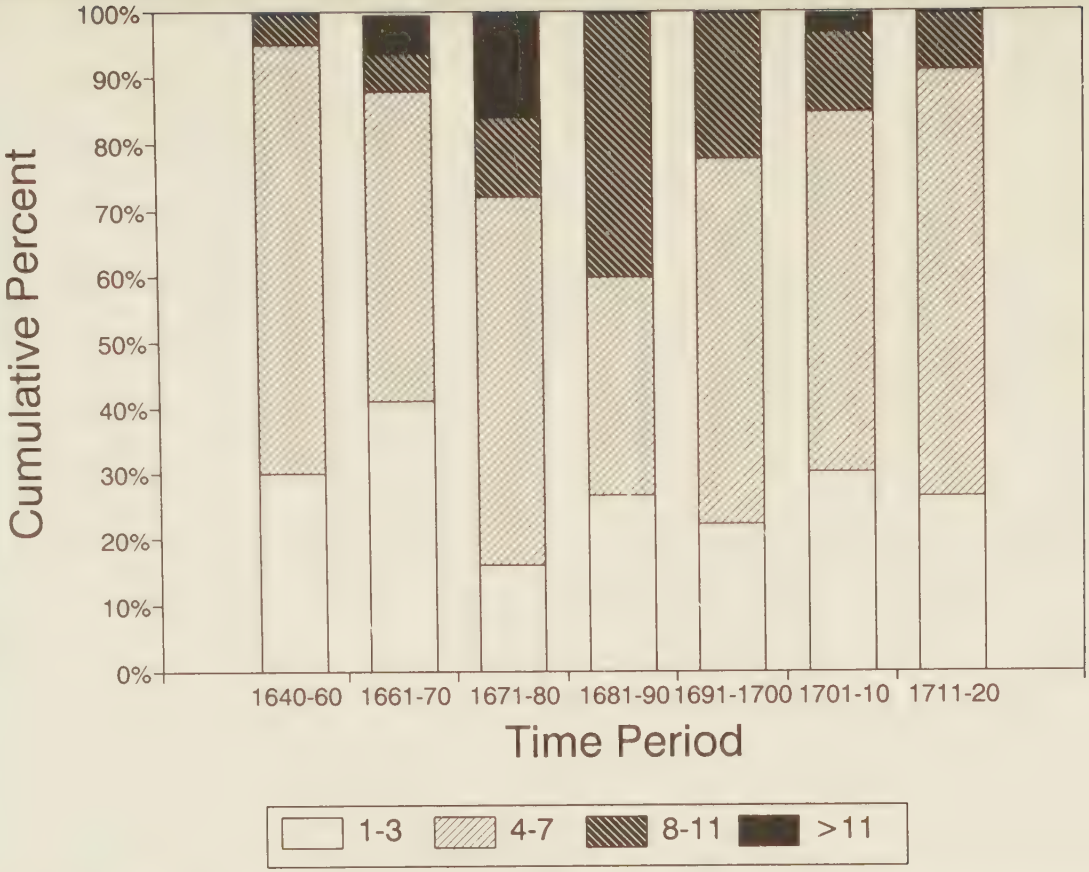

FIGURE 5. Cumulative Frequency Distribution of "House Size" in Virginia Probate Inventories By Decade (from Upton 1980)

What are we to make of these data? Upton suggested that they reflected the initial accommodation of laborers in the houses of their masters, followed by their removal to separate kitchens, quarters, and other outbuildings at the end of the century, as planters were eventually overwhelmed by the influx of indentured servants, which Craven (1971) postulated on the basis of headrights occurred in the third quarter of the 17th century. Menard (1977:362) has demonstrated that Craven's influx of servants never occurred. In any case, using Upton's results, Deetz (1988) has argued that the increase in house size reflected planters living under the same roof with their servants, while the decline was the result of growing "strains" in social relations between planters and laborers, as planters relegated laborers to separate quarters, from 1690 on. The important thing to note in the context of the current discussion is that both arguments suggest that the accommodation of laborers in planters' houses was increasing into the 1680s. This picture does not square with the archaeological evidence which registers pressures favoring reduced laborer access to the house core by the middle of the century. What are we to make of this contradiction?

One possibility is that Upton's "house size" does not really measure house size at all. How did Upton count rooms? It turns out that he "counted every listed domestic and service space not obviously an outbuilding (e.g., quartering house, barn)." It is clear that "many of these spaces may have been in outhouses rather than in the house proper" (Upton 1980:154). Upton's "house size" is really a measure of utilized domestic space on the entire home-farm plantation, not the number of rooms in a single dwelling. If this is correct, changes in "house size" are a function of the number of laborers being housed and working on the home-farm plantation, whether inside or outside the houses of their masters. The increase in house size to 1690 is driven by the growth in servant-specific work and living space on home-farms, while the decline in house size from the 1690s on represents the increasing frequency with which planters with large labor forces housed laborers on outlying quarters, as opposed to home farms. In other words, if Upton's data do capture some aspect of change in plantation spatial organization, it is at a spatial scale far larger than is relevant to the problem of change in the arrangement of domestic space within planters' houses.

Apparently, as the size of production units at the upper end of the social scale increased across the 17th century, so too did the costs associated with placing field laborers at a single site. Most important were the costs of moving laborers from a single sleeping site to scattered fields. Hence, with increasing plantation size, there were increasing payoffs for planters who placed laborers on outlying quarters, situated close to work places.

There is, however, a second possibility. It is that shifts in "house size" simply do not measure aspects of plantation organization at any scale, but rather are a function of change in the cognitive conventions used by inventory takers in performing their court-appointed tasks in the late 17th and early 18th centuries. In other words, the frequency with which inventory takers made exhaustive room lists increased up to the 1680s and thereafter declined. We know that such changes occurred for the conventions governing the descriptions of other sorts of inventoried items (Beaudry 1980, 1988). Why not room naming?

I raise this question not simply out of blind archaeological chauvinism, but because it highlights a larger point. It reminds us that documents are fundamentally problematic sources of evidence about the past. Often, as in this case, they are more problematic than archaeological artifacts. They are more problematic because the data we derive from documents are not observations on past behavior and artifacts. They are our observations on some dead person's observations on behavior and artifacts. In other words, documentary data have already been put through a perceptual editing process in the past, when the documents were created, over which we have absolutely no control. There is no a priori reason to suspect that the categories they used to cut up the world were consistent, or consistently applied, or had anything to do with the kind of variation that we are interested in studying. In fact, given the difficulty modern Virginia archaeologists have in creating systematic descriptions of the archaeological record, there is every reason to be pessimistic about the descriptions that colonial Virginians happened to leave us. The signal potential of archaeological data lies in the fact that archaeologists are solely responsible for producing it. The advantage can be realized when archaeologists make that production process explicit, so that it can be systematically applied and the results evaluated. If we are ever to come to a better understanding of the issues I have pursued here, it will be from data collected in the archaeological record, not the Virginia State Library.

CONCLUDING REMARKS

In archaeology we have a special name for our explanations. We call them inferences. The different term connotes a widespread, and absolutely correct, intuition that more work is required before any single inference can be accepted as a real explanation. The process of producing archaeological explanations, which comprise our contribution to knowledge of the past, requires what the 19th-century philosopher of science William Whewell called the "consilience of inductions" (Gould 1986). The phrase nicely captures the requirement, which

archaeologists have only recently begun to appreciate (Wiley 1989:26), that we must arrive at our inferential goals by convergence from multiple, independent sources of data and hypothesis before we can place much confidence in the results.

Readers should therefore be warned: there is much more ambiguity about variation in the use of architectural space than my brief comments in this paper hint. If archaeologists are to make good on our pretenses to produce historical knowledge, we must work hard to eliminate that ambiguity. Most obvious is the need for a larger sample of excavated house plans. With 65 sites apportioned among six time periods, the possibility that our patterns are an unwelcome artifact of sampling error is nothing less than frightening. Less apparent is the need to take Whewell seriously and recover new, independent sources of data against which the foregoing inferences about space use, based on plans alone, can be evaluated. Until that independent evaluation is carried out, the claims I have made must be considered for what they are: promising hypotheses and nothing more.

There are several possible sources of such evidence. For example, ancillary evidence for divergence in diet and living conditions between planters and laborers can be had from analysis of trace elements and isotopes in human skeletal tissue (Aufderheide et al. 1981) and from traditional faunal analysis (Miller 1988). However, the only direct source of evidence regarding the differential use of architectural space, in addition to the plans examined here, lies in the horizontal distribution of artifacts in the plowzone that covers these sites. Elsewhere I have shown how plowzone artifact distributions can be used to address the kinds of issues discussed here (Neiman 1980, 1990). It turns out that such evidence not only is crucial to evaluating and correcting inferences made on the basis of plans, but also makes possible detailed inferences about plantation production organization and the use of space that simply cannot be had from plans alone. The need for independent sources of evidence about the use of architectural space means that Chesapeake archaeologists need to give serious thought to ways of making the collection of plowzone artifact samples routine. A good beginning in this direction has been made (Keeler 1978; Miller 1986; King and Miller 1987; King 1988, 1990; Pogue 1988; Louis Berger and Associates 1989). These simple techniques need to be more widely applied.

Finally, as my remarks at the beginning of this essay suggest, we need to sort carefully through the collection of theoretical tools that we use to convert post holes and pottery into history. Just how that sorting process might be conducted is the subject of another paper, but the general direction that looks the most promising to me should be evident from what I have said here. With the

addition of more sites to our sample, the accumulation of independent data on the use of space, and development of more powerful and useful theoretical tools to make sense of the results, it might just be possible over the next decade to achieve the "consilience of inductions" that alone will allow us to know which of the historical claims I have made in this paper are empirically correct.

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SEVENTEENTH-CENTURY CHESAPEAKE SETTLEMENT PATTERNS: A CURRENT PERSPECTIVE FROM TIDEWATER VIRGINIA

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INTRODUCTION

In his now classic study of prehistoric settlement patterns in Peru's Virú Valley, Gordon Willey defined settlement patterning as "the way in which man disposed himself over the landscape on which he lived" (Willey 1953:1). Settlement patterning, Willey said, reflected the natural environment, the level of technology, and the institutions of social interaction which characterized a particular culture. Twelve years later in his review of settlement pattern studies in archaeology, Bruce Trigger (1965) observed that research on this subject tended to emphasize one of three basic levels of site phenomena: the character of individual buildings or structures, the nature of their occurrence within individual settlements or communities, and the way that these communities are distributed over the landscape. On the single community level, he considered such ecological attributes as available drinking water, sources of food, and safe, pleasant surroundings, with good soil, to be the primary determinants of settlement patterns. Trigger further suggested that these and other factors such as warfare, religion, and variations in traditional land use practices work to influence the patterning of communities within a region.

This descriptive approach to settlement patterning has long since been augmented, if not supplanted, by variations of locational theory, a strategy which emphasizes the analysis of the location of settlements and the "way that location

affects interaction between these settlements" (Plog 1974:78) rather than descriptive functional models. Still, Trigger's three levels of settlement patterning can be retained as a useful basis for reviewing archaeological research on the subject of 17th-century settlement patterns within the Chesapeake. In surveying the work of historical archaeologists, however, it must be remembered that they have not been alone in pursuing this subject. A review of the contributions of archaeologists should keep in mind the contributions of historians and historical geographers, whose work on many critical topics has often anticipated and in some cases even shaped the interests of archaeologists.

HISTORICAL AND GEOGRAPHICAL PERSPECTIVES

In his 1971 M.A. thesis, "Patterns of Settlement in the James River Basin," social historian Frederick Fausz used maps, land patents, and other primary sources to describe the settling of the James River region in the early 17th century. Fausz combined topographic, ecological, and economic factors with a kind of core/periphery model to explain what he felt was a rather haphazard arrangement of dispersed communities (Fausz 1971). Kevin Kelly used similar sources for his analysis of settlement patterns in 17th-century Surry County (Kelly 1979). He considered the boom/bust nature of the tobacco-based economy, ecological factors, threat of Indian attack, and population growth to be the primary influences on the pattern of settlements on Virginia's Southside.

Historical geographer Carville Earle, in his study of a Tidewater settlement system in All Hallows Parish, Maryland, also discussed determinants of settlement patterning in terms of the economic effects of fluctuating tobacco prices and ecological factors of water, soil, terrain, and climate (Earle 1975). Another historical geographer, Ronald Grim (1977), assessed trends towards centralization of services within 17th-century York County as a prelude to the formal establishment of towns by evaluating the relative degree of service activity clustering during three periods between 1630 and 1705. His study is noteworthy, for it represents the first concerted attempt by any scholar — archaeologist, historian, or geographer — to rigorously apply central-place theory to the settlement patterns of early Tidewater Virginia, rather than explaining the rise of urbanism in terms of legislation or environmental proclivities.

Historical studies of settlement patterns in the early Chesapeake emphasize economic and ecological factors as the prevailing influences on the distribution of an immigrating population on a new landscape. These social historians and historical geographers relied upon various documentary sources including period maps, land patents, travel diaries, and other public and private

records from the time period. The very useful studies that they produced were accomplished without the benefit of archaeological data. What, then, could the combination of historical documentation and historical archaeology add to the analysis of settlement systems and settlement patterning within the Chesapeake during the first century of this region's colonial development?

SETTLEMENT PATTERN STUDIES IN HISTORICAL PERSPECTIVE

The first major 17th-century site excavated in the area was Jamestown, where large-scale excavations were begun in the 1930s. Although historical archaeology, of sorts, had been carried out in the Chesapeake prior to this time, these earlier excavations were generally directed at digging up the houses or yards of "great men" or at locating foundations for reconstruction purposes, like much of the work done at Williamsburg during that period. Excavations and analysis at Jamestown, by J. C. Harrington and later John Cotter, were the beginnings of systematic study of a settlement community. Contexts were excavated stratigraphically, and artifacts were recovered, processed and analyzed. The vast amount of material collected, along with providing the raw material for the development of the Harrington pipe stem dating technique (Harrington 1954), has also provided grist for more than 30 years of research into 17th-century material culture.

After a 10 to 15 year gap in the archaeology of 17th-century settlements, the 1970s began with the full-scale excavation of two of the "Company period" fortified settlements: Flowerdew Hundred and Wolstenholme Towne. Beginning in the early 1970s as well, the systematic excavation of early 17th-century plantations stimulated the analysis of intra-site spatial patterning on larger, more complex settlement units. Work at Flowerdew, Martin's Hundred, Governor's Land, Kingsmill, and the Clifts in Virginia, and Middle Plantation and St. John's in Maryland, stimulated (and was stimulated by) a great interest in 17th-century material culture, especially vernacular architecture. That research culminated in an important survey of the development, and analysis of the social and economic context for, Chesapeake impermanent architecture (Carson et al. 1981).

Fraser Neiman's excavation of the Clifts Plantation in Westmoreland County and Robert Keeler's dissertation on St. John's homelot were perhaps the first to deal with intra-site spatial patterning in an analytical manner. Neiman's interpretation of the Clifts (Neiman 1978) rethought the notion of the impermanence of vernacular architecture in the 17th century and brought a new perspective to the evolution of the use of space within houses which occurred during the first century of English settlement in the region. He linked patterns

in house plans and houselot boundaries to changes in the Chesapeake social order in a creative and convincing manner. Keeler, working from his own model of the Chesapeake frontier, analyzed the change in homelot spatial use, seeing it become more ordered as time passed, a reflection in a sense of the passing of the frontier and maturation of Chesapeake society (Keeler 1978).

Studies such as Keeler's and Neiman's made much use of carefully-plotted artifact and soil chemistry distributions. Such care in recording and interpreting intra-site and intra-settlement patterning has culminated in the recent work by St. Mary's City archaeologists on the problem of plowzone artifact distributions. This work by Tim Riordan (1988), Dennis Pogue (1988), and Julia King (1988), among others, has strengthened the case for the close examination of the plowzone context on archaeological sites, a context that was once summarily machined away by many of us, and still is to this day by a few. These various studies indicate that there has been great progress made in the interpretation of intra-site and intra-community settlement patterning on 17th-century Chesapeake sites, but little attention has been directed to the regional level.

THE ARRIVAL OF LOCATIONAL ANALYSIS IN THE CHESAPEAKE

This lack of archaeologically-based scholarship on aspects of regional settlement systems in the Chesapeake is somewhat surprising in view of the amount of research undertaken at this level elsewhere, especially in New England and farther to the south. It is also surprising inasmuch as historical geographers like Earle and Grim and social historians like Kelly have already demonstrated the importance of this scale of inquiry. In Maryland — which has far fewer recorded 17th-century sites than Virginia — Michael Smolek, Wayne Clark, Dennis Pogue, Stephen Potter and Gregory Waselkov have produced studies using locational and ecological analysis to account for patterns of early English settlement. Their analyses, based on documentary sources and known site locations, demonstrate convincingly the importance of good soil, fresh water, access to transportation routes, and previously-cleared land as determinants of site selection during the early phases of colonization (Potter and Waselkov 1984; Smolek 1984; Smolek, Pogue, and Clark 1984).

In a sense, these studies have only borrowed the simplified version of locational analysis introduced into prehistory by the "new archaeology" during the early 1970s. This is a general approach that emphasizes basic ecological factors in constructing locational models. The shift from what some have called the descriptive or functional approach to settlement pattern analysis in

archaeology to a perspective more closely wedded to the intellectual tradition of locational analysis in human geography was but one manifestation of the repudiation of the inductive approach and adoption of more "rigorous" predictive models that supported the creation of testable hypotheses. Locational analysis seemed to offer a valuable new way of constructing such predictive models, with appropriate test implications that could be examined in light of survey-level data. The "site predictive" approach, with its stress on basic environmental variables, has proven of some use, especially in studies brought about by cultural resource management requirements, but often the studies that result are descriptive and narrow in focus.

But other archaeologists, also motivated by the desire to work with formal models that facilitate hypothesis-testing, have successfully reached beyond the basic ecological approach, to incorporate more complex conceptions of geographically-based locational principles into their analyses. An excellent case in point is the work of Kenneth Lewis. In his Ph.D. dissertation on the Jamestown frontier (Lewis 1975), and his book on the development of the South Carolina frontier (Lewis 1984), Lewis began to expand the locational/ecological approach taken to regional settlement patterns. His effort at modelling spatial organization of British colonial societies depends on a formal model of the frontier, constructed from the prior work of geographers and anthropologists. He draws attention to the importance of incorporating settlement forms familiar to colonists from their experiences in Britain, especially the town, and the need to consider the fundamental economic reasons for colonization. Although superior to earlier ecological approaches, his is primarily a descriptive or classificatory strategy, however, insofar as he devotes much effort to identifying the functional equivalents of different frontier types, based on a framework borrowed from historical studies of frontiers (Lewis 1984).

Recently, the general subject of settlement patterning in historical archaeology has been purposely situated within the context of large-scale models of economic systems, particularly the "world systems" model developed by comparative sociologist Immanuel Wallerstein (1974, 1979, 1980). The "world systems" approach takes into account the broad perspective of world economy and international relations brought about by the movement of the core of economic superiority from the Iberian Peninsula to northern Europe between the 15th and 17th centuries. Important factors in the shaping of this model are the manifestations of the types and forms of colonization exhibited by the principal players: Spain, Portugal, France, the Netherlands and England.

Although he uses New England rather than the Chesapeake to develop his approach, Robert Paynter (1985) has devoted considerable effort to understanding

the spatial organization of frontier settlements. In his article, "Surplus Flow Between Frontier and Homeland," he sets forth a general model of settlement dynamics in view of what he calls "long-distance" processes. While he is concerned with such phenomena in the study of complex society generally, he more specifically emphasizes a "world systems" perspective and concentrates on the historic period within New England and the Connecticut River Valley. Paynter describes two principles fundamental in studying human colonization: that social relations as well as ecological considerations must be analyzed in order to understand the material conditions of the colonizers, and that the concept of surplus describes the nature of these material conditions quite well. This notion of surplus comes out of the cultural materialism of Marvin Harris (1979) and, more recently, Eric Wolf (1981). This is not, of course, surplus in the conventional sense, but a necessary surplus so that commodities can be produced for the commercial center, the growth and spread of a new population being directly tied to the amount of "surplus" produced. In addition to studying the ecological factors, Paynter argues, one must also attempt to analyze the relationships between the primary producers (the indentured servants who grew the crops) and the regional elites (who owned the land), and between these regional elites and the core elites who represented the end market for the surplus. The viability of the end market was based on the world system economy.

One historical archaeologist who has overtly applied the "world systems" approach to the settlement dynamics of the Chesapeake is Daniel Mouer. His paper, "Everything in its Place: Locational Models and Notions of the Elite in Virginia, 1660-1865," shares much in common with Paynter's work, although he emphasizes a specific model of mercantile colonization constructed from the work of a different group of geographers and anthropologists. But, like Paynter, Mouer stresses the importance of different kinds of elites and their formation in light of the dynamics of spatial differentiation within the frontier (Mouer 1987).

Mouer argues that important aspects of material culture patterning will reflect both the geographic and social place of households. Regional elites residing in the core area of colonial settlement should exhibit different patterns of material life than do local elites residing in the peripheral settlement areas. Mouer used quantified ceramic data from the Epps site in Henrico, home of local elite and part-time merchant Francis Epps, and the Pettus site at Kingsmill owned by regional aristocrat Thomas Pettus. He found that the regional elite had more vessels, a higher percentage of flatware as opposed to hollow wares, and a lower percentage of storage vessels than the local elite. But even though Pettus obviously owned what would be considered a "high status" ceramic assemblage, he lived in a large post-in-the-ground structure, while Epps's house was smaller

but constructed on a brick foundation. By examining apparent status differences between the core and peripheral elites, and using biographical data linking Epps with the peasant class, Mouer was able to show that in a capitalist-based society, a local elite will arise from the peasantry, because as part-time merchants, they are able to extend some measure of control over the exchange of a commodity (or surplus as Paynter describes it) with the core elites (Mouer 1987).

Although Mouer tried hard to frame his hypotheses in terms of excavated results, his effort was hampered by the lack of readily accessible quantified data from previously excavated sites. Other efforts to model English colonial settlement patterns along the eastern seaboard also have found it difficult to incorporate concrete archaeological data even when appropriate material exists. In part, the absence of such data results from the emphasis this kind of scholarship places on model-building and deduction. In this sense, these studies fail to heed the advice given by James Deetz to avoid what he calls "unidirectional approaches" in historical archaeology, whereby archaeological and documentary data are searched independently for reflections of what is already known from one source or the other. In many cases, models of settlement patterning derived from ethnographic and documentary evidence, especially if sufficiently detailed, leave little room for the productive use of archaeological data. Where present, these materials tend to be employed in the unidirectional, reflective way described by Deetz (1987).

THE CONJUNCTIVE APPROACH TO REGIONAL SETTLEMENT PATTERNS

Deetz argues that "while using the material record as a point of departure, archaeologists should seek explanations for their data in terms of the known history of the region and time represented by their material. The key is to use both archaeological and historical evidence to reach understandings that neither source of evidence could alone provide" (Deetz 1988:363). An excellent example of the approach Deetz advocates can be found in his own application of archaeological data to the problem of settlement patterning within the early Chesapeake, arguably one of the most creative applications of often-overlooked survey-level evidence to the broader dynamics of settlement patterns yet produced in historical archaeology.

In an effort to sort out a large number of recorded 17th-century sites at Flowerdew Hundred, a plantation on the south side of the James River, Deetz chose to examine one artifact in particular, the ubiquitous clay smoking pipe stem. He sought to use the method of pipe stem dating pioneered by J.C.

Harrington (1954) to better date the sites known from earlier surface collections of plowed fields. While analyzing pipe stem bore diameter data gathered from the surface surveys, Deetz (1987) made a serendipitous discovery when comparing Harrington histograms of the pipe bore diameters: the Harrington graphs of the pipe bores made a pattern which suggested three major temporal groupings. Group 1 sites produced histograms peaking in the 1620-1650 period, Group 2 period sites produced flatter profiles indicating a longer term of occupation in the latter part of the 17th century, and Group 3 peaked within the 1710 to 1750 period (Figure 1).

By preparing Harrington histograms which graphically indicate the relative percentages of each bore diameter from 9/64th to 4/64th inch for each site, and then comparing them one to another using a direct visual technique, Deetz could do more than simply date his sample of sites. Since "flatter profiles," i.e., similar percentages of several bore diameters, indicates a longer period of occupancy (Stone 1977), he was able to observe an important attribute in their aggregate temporal patterning — duration of occupation — through the course of the 17th century and into the middle of the 18th century. This facet of early settlement pattern in this part of the Chesapeake had not previously been identified by archaeologists, historians, or historical geographers. As Deetz notes, his discovery of this temporal pattern was made possible by his use of the histogram technique, one which, "not only provides a reasonable piece of dating evidence for the site from which the sample was taken, but some indication of the duration and nature of the occupation" (Deetz 1988:364).

Having happened upon a previously unrecognized aspect of early Chesapeake settlement pattern, witnessed here at what Trigger would call the community level and represented by 18 sites on Flowerdew Hundred, Deetz turned to the historical record in search of an explanation of the pattern. He found that the abandonment of the sites in the first group coincided with a severe depression in tobacco prices in the third quarter of the 17th century. The second group spans more than a generation during a period when arriving immigrants planned to remain in the Chesapeake, unlike their earlier counterparts. The occupation span of the third group begins at just the time when slavery is becoming fully institutionalized.

By seeing how major events in Chesapeake history correspond with the occupation spans of these three site groupings, and looking more closely at how these groups are distributed on the ground, Deetz (1987:66) was able to summarize the settlement history of Flowerdew Hundred (Figure 2):

In the early decades of the seventeenth century, tobacco yielded

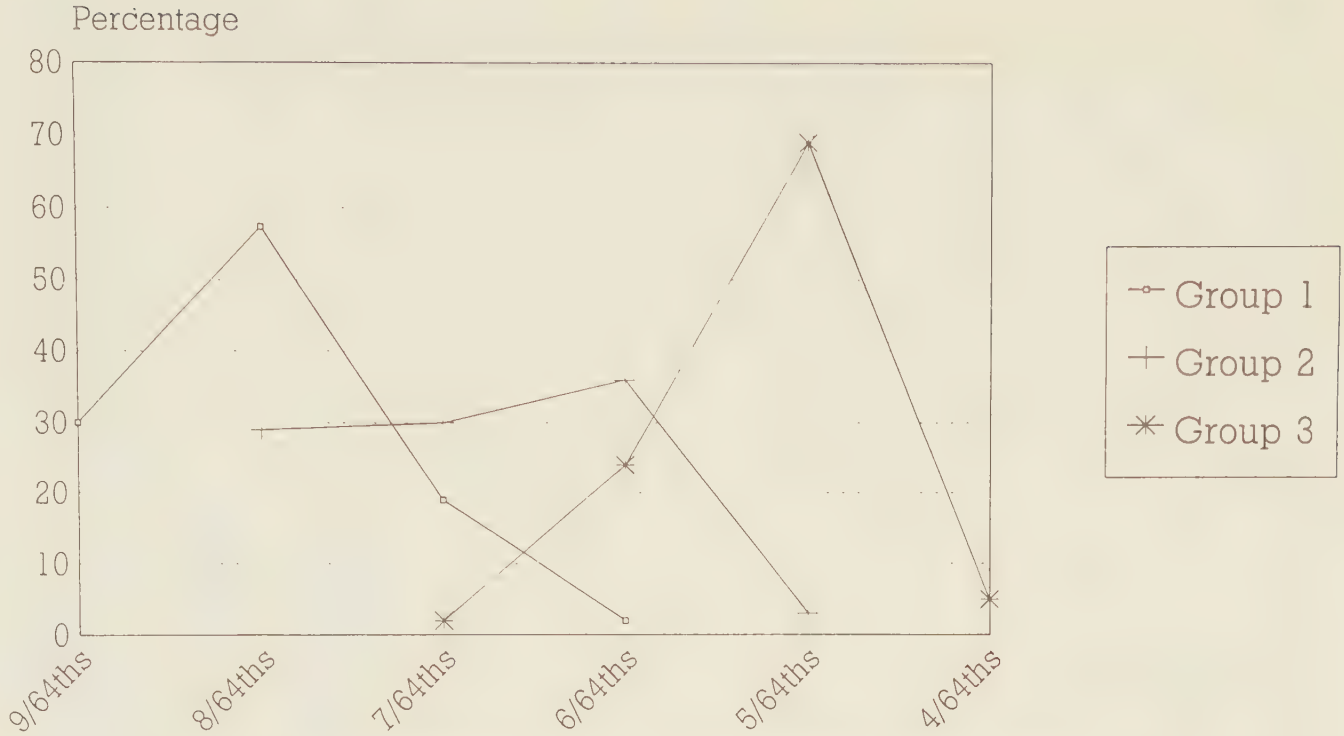

FIGURE 1. Harrington Histograms from Flowerdew Hundred (Deetz 1987)

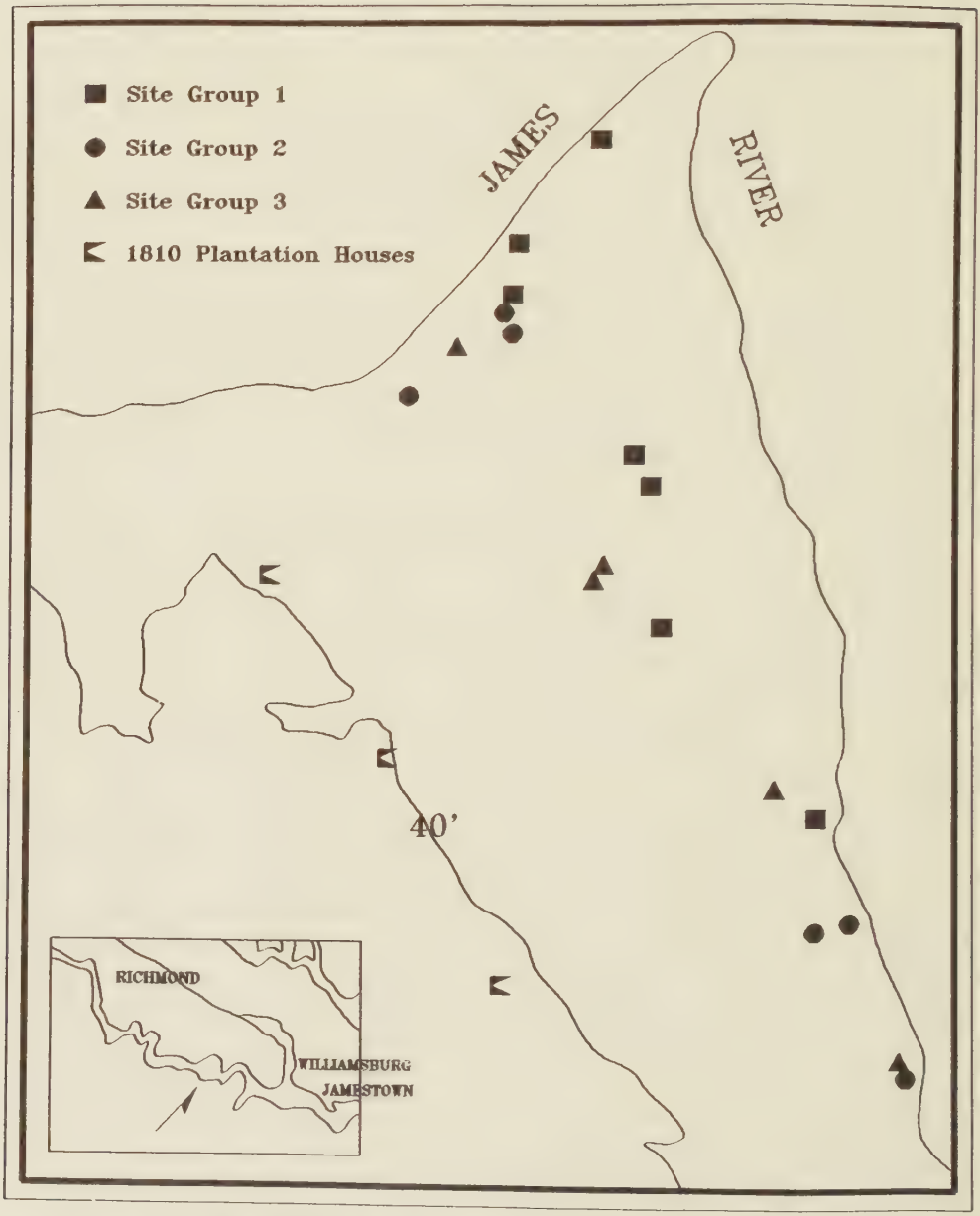

FIGURE 2. Summary of the Settlement History of Flowerdew Hundred (Deetz 1987)

quick profits and the Flowerdew bottomlands were settled and farmed evenly. The resulting archaeological evidence is the sites in group one. When tobacco no longer was a source of instant wealth, there was a shrinking of occupation; families moved nearer the river and away from the center of the plantation. This small-scale migration resulted in the sites forming group two. When slavery made it possible for a person of relatively modest means to possess a labor source that enabled him to produce tobacco, settlement expanded again. Finally, settlement dwindled as the plantation lands came into the hands of three wealthy planters and finally fall into the possession of only one.

Using a simple technique based on real archaeological data that is easy enough to come by, Deetz was able to recognize a major aspect in the temporal variability of early settlement patterns at Flowerdew Hundred. He was also able to relate this variability directly or indirectly to larger scale, long-distance processes relating to world economic conditions — a stated but often unrealized goal of much recent scholarship on settlement patterns produced by historical archaeologists.

Of course, Deetz could not have accomplished this without the historical context already provided by the valuable scholarship of Edmund S. Morgan (1975) and many other students of Chesapeake social and economic history. But the fact remains that the patterns that Deetz began with — his point of departure — were archaeological. The kind of patterning that Deetz identified can be discerned only from attributes of the physical record of human settlement preserved in the ground. The question for other archaeologists is: Can the temporal variability discovered by Deetz be shown to exist in other archaeological data from the Chesapeake? Is this temporal variability a basic attribute of the regional settlement pattern or simply a characteristic in the succession of settlements at Flowerdew? Deetz's pattern should be more than a community-level phenomenon if the historical factors he identifies to explain the Flowerdew case are correct.

A CASE STUDY FROM CARTER'S GROVE

There are many sites that could be used to test the results of Deetz's analysis, especially those recorded during the survey of large tracts like Kingsmill and Governor's Land. Over the past 20 years, the Colonial Williamsburg Foundation has conducted surveys and full-scale excavations on 17th-century sites at Carter's

Grove, just east of Williamsburg. Since data from these sites was readily available, they were selected to test the patterns of temporal variability seen by Deetz at Flowerdew. Like Flowerdew, Carter's Grove began as a "particular plantation" known as Martin's Hundred. Archaeological investigations at Carter's Grove have revealed many of the components of the community of Martin's Hundred, as it existed both prior to and following the outbreak of the First Anglo-Powhatan War in 1622.

Although all archaeological excavations have been carried out by the current owner, the Colonial Williamsburg Foundation, those done under the direction of Ivor Noël Hume in the 1970s concentrated on the pre-1622 occupation of Martin's Hundred. These included a fortified area and several palisaded housing compounds (Noël Hume 1982). The most recent work, undertaken during the past two years, has consisted of intensive survey and testing of a 231-acre tract being considered for development. The result of this work, directed by David Muraca and Meredith Moodey, has been the identification and close examination of six 17th-century sites, including two that Noël Hume had recorded in 1978. One of these sites, a small domestic complex dating to the second quarter of the century, was completely excavated because it was threatened by the construction of a new James City County school (Figure 3).

The results of this study, just completed in September 1991, offered an excellent opportunity to evaluate the results of Deetz's Flowerdew study. Of course, there are many similarities between the two communities. They both began as enclosed settlements in the early 1600s, underwent an expansion and dispersal into individual settlements during the mid-to late 17th century, and by the mid-18th century were in the process of being consolidated or had been consolidated under one owner. But there are important differences too, especially in terms of the specifics of topography and in overall location within the James River drainage — differences that might have influenced the patterns observed by Deetz at Flowerdew.

Using pipe stem data recovered from the six 17th-century sites excavated in the summer of 1991, together with information on pipes from two other Martin's Hundred sites — sites A and B, graciously provided by Audrey Noël Hume — an attempt was made to duplicate Deetz's Flowerdew study. The purpose was to see if there was similar variability in the duration of occupation through the 17th and early 18th centuries. Based on Harrington histograms, the eight sites at Martin's Hundred appear to fall into three distinct sets as did those at Flowerdew. One of the groups from Martin's Hundred corresponds remarkably closely with one of the Flowerdew clusters (Figure 4).

FIGURE 3. Carter's Grove Greene Tract 17th-Century Sites

Group 1 at Martin's Hundred consists of three domestic sites, the majority of whose pipe stem bores were 9/64ths inch in diameter: Carter's Grove sites 2, G, and 11. Sites 2 and 11 were similar, in that each was located adjacent to a steep ravine which helped it escape the plow and each contained an intact midden layer. Structural posts with repairs were found at site 11 and a large humic pit was discovered at site 2.

The Group 2 set consists of four sites with pipe stem bores predominantly measuring 8/64ths of an inch. The four sites vary greatly in size and complexity, as well as in the number and quality of their material remains. All of the sites were fairly extensively excavated. Site A is a large multi-structure site, possibly substantially paled-in, containing 23 graves, a cannon ball, and some other military items. This site may have functioned as an administrative or political center during and after the re-occupation of Martin's Hundred following the Anglo-Powhatan War. Sites B and 8 are similar domestic sites, each consisting of a small dwelling. Site B contained far superior quality artifacts than did site 8, including silver and gold table knives, spurs, and a basket-hilt sword and chain mail. The 37-by-19-ft. house on site B was also larger than the 18-by-24-ft. house found on site 8. Site F appears to be a non-domestic site containing several oval pits, one of which contained three hoes. It may be a later enterprise associated with nearby site G.

Group 3 at Martin's Hundred is represented at this time by only one example, site 10. Testing yielded several postholes with repairs, suggesting a relatively long-term occupation span that is also indicated by the pipe stem bore diameters, primarily 7/64th of an inch. The site spans a period from circa 1650 perhaps into the early 18th century.

Comparing pipe stem diameter data from the three groups at Flowerdew and the three at Martin's Hundred produced interesting results (Figure 5). The site occupation span represented by Martin's Hundred Group 1 begins some 20 years earlier than Deetz's first group. The fact that it does not correlate with any of the Flowerdew groups may mean that it represents an earlier dispersion of entrepreneurial-oriented settlement at Martin's Hundred, probably due to organizational differences between the two plantations or in response to the location of Martin's Hundred closer to both Jamestown and the mouth of the James River. Why the occupation span evident in Martin's Hundred Group 1 peaks when it does is unclear, and the factors responsible for abandonment need to be more fully explored. They may be related to the fact that, unlike Flowerdew Hundred, Martin's Hundred was virtually destroyed in the spring of 1622. A large portion of the population of Martin's Hundred was killed by the local Powhatans and the settlement was abandoned. At Flowerdew, however,

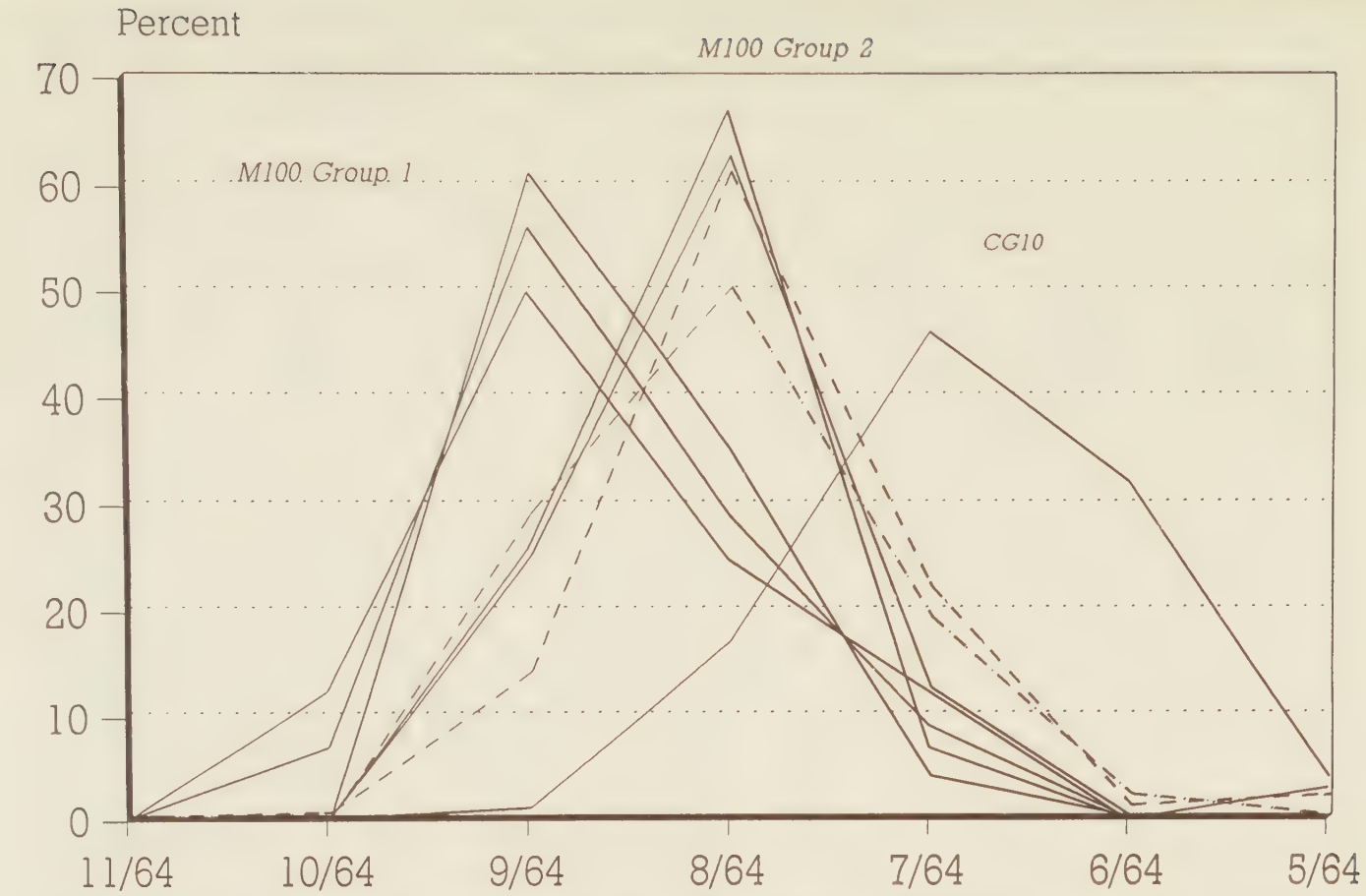

FIGURE 4. Imported Pipe Stem Bore Diameters from Martin's Hundred

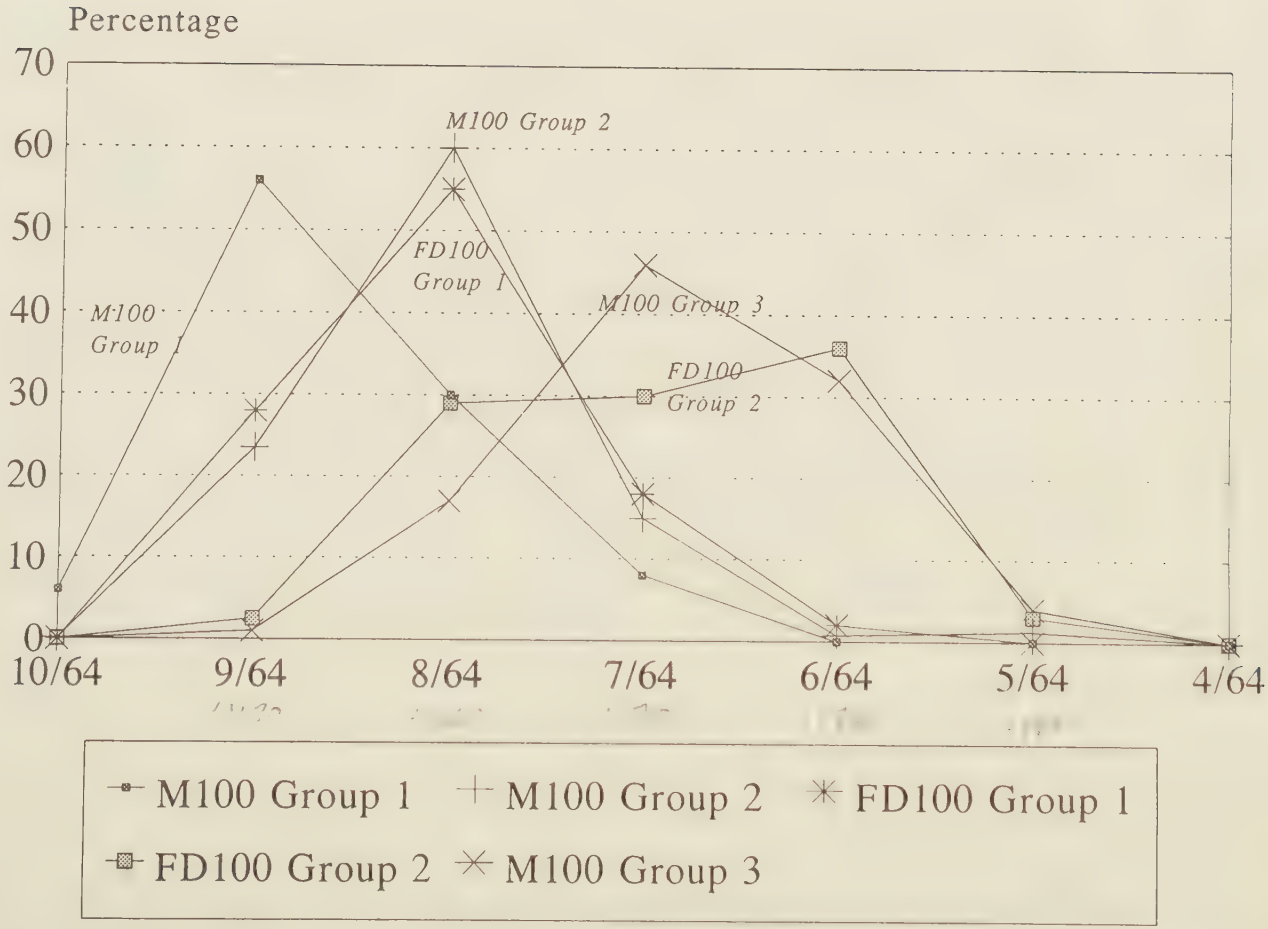

FIGURE 5. Imported Pipe Stem Bore Diameters from Martin's Hundred and Flowerdew Hundred

either because of better management or sheer luck, the casualties were slight and the settlement continued uninterrupted. Thus the occupation span of Group 1 sites at Carter's Grove may reflect the abandonment of Martin's Hundred and the re-settling of the area in the 1625-1635 period.

Martin's Hundred Group 2 and Flowerdew Group 1 are almost exactly alike in period of occupation, and Martin's Hundred Group 3 corresponds fairly closely with Flowerdew's Group 2. The almost exact match between Martin's Hundred Group 2 sites and those making up Flowerdew's Group 1 sample is likely the result of the fact that both settlements were responding to the same economic conditions, that of falling tobacco prices and spent land, causing many small tobacco planters to go under or move on, and the larger, quick-profit oriented entrepreneurs to pull up stakes as well. Group 3 at Martin's Hundred and Group 2 at Flowerdew are also somewhat similar, especially in their long duration. Both groups may represent, as Deetz suggests, an attitude developing by the end of the century reflecting the majority of Virginians' feeling they wished to remain here or that they were, in fact, born here. The house at Martin's Hundred site G had undergone several repairs, characteristic of a site occupied for a relatively long period.

If this review were concerned with the 18th century a Group 4 probably could have been identified at Martin's Hundred, perhaps corresponding to Deetz's Group 3 at Flowerdew. Those are sites whose occupation spans relate to the rise of an elite that needed slave labor to insure their success in tobacco-growing. Sites on other portions of Carter's Grove appear to be associated with these developments, culminating in the construction of the mansion by Carter Burwell in the 1750s.

Deetz's simple but insightful analysis of pipe stems at Flowerdew shows that minimal analysis of survey-level archaeological data can produce essential evidence of important variability in settlement patterning, at least on the community level. Furthermore, this variability can be explained in terms of basic developments in economic and social history. While the Carter's Grove study was not able to match his observations about the locational shifts in the site groupings, the preliminary results suggest that what Deetz has seen is, in fact, a basic temporal characteristic of the regional settlement pattern of the 17th-century Chesapeake.

This temporal structure of early 17th-century settlement patterns, seen in fluctuating periodicities of site occupation spans, and their apparent correlation with economic developments on an international scale, was observed in the patterns in the bore diameters of clay pipes recovered from intensive surface collection and shovel testing. The implications of these regional settlement

patterns and the historical developments that may explain them clearly need to be further explored in the course of new excavation and, more importantly, in the concerted analysis of existing 17th-century site data from the region. The framework provided by the Flowerdew study has been expanded by Deetz (n.d.) and applied at the site examination level by Colonial Williamsburg archaeologists at Martin's Hundred (Moodey 1992; Muraca n.d.).

THE FUTURE OF REGIONAL SETTLEMENT PATTERN STUDIES

Experimenting with pipe stem measurements to better date sites at Flowerdew Hundred, Deetz revealed a clear periodicity in the intensity of historic occupation of the property, a pattern he could link directly or indirectly to larger-scale, long-distance processes relating to world economic conditions. In doing so he could isolate some of the factors that may be responsible for the patterning of people on the landscape, an explanation made possible by turning to the sources that provide an understanding of substantive historical context. Recent work on sites from Carter's Grove Plantation in James City County suggests that what Deetz discovered may well be widespread through the region.

In an early article on the difference between traditional settlement pattern modelling and the then-new locational approach, Fred Plog chided archaeologists for their "failure to go beyond definition and description...leaving...the question of why these patterns exist unanswered." He argued that:

> Settlement pattern models are...descriptive functional models with only limited explanatory value. They are models for describing and organizing survey data in order to provide insight into the manner in which past societies functioned. They are unlikely to lead the archaeologist to an understanding of how a particular distribution of sites came to be, how it changed, or why it changed (Plog 1974:77, 78).

In the case of the 17th-century settlement of the Chesapeake, and especially the James River drainage, such concerns are misplaced so long as it is recognized that descriptive models of settlement patterns, such as the site groups revealed by pipe stem analysis, can readily be explained by turning to the historical record, a strategy not available to prehistorians like Plog.

A full understanding of 17th-century Chesapeake settlement patterns should incorporate broad conceptions of colonization such as those first introduced by Lewis (1984), and subsequently elaborated by Paynter (1985) and

Mouer (1987). However, archaeological research on this important subject should avoid the pitfalls of what Deetz has described as the "unidirectional approach," in this case, an overly rigid commitment to the model-building and hypothesis-testing evident in much recent work.

Historical archaeologists working in the Chesapeake are blessed with a data base far in excess of what is available for other former colonial regions. For example, a recent evaluation of the existing inventory of 17th-century sites in the Williamsburg area, accomplished as part of the revision of the 1985 preservation plan developed for the central James-York Peninsula, indicated that of the more than 200 known 17th-century sites in Tidewater Virginia, nearly 60 are located in Williamsburg and the two counties surrounding it. Over 40% of these 60 sites (approximately 25) have seen extensive excavation. The resulting artifact assemblages and other site data are housed by a number of institutions, including the Virginia Department of Historic Resources, the Association for the Preservation of Virginia Antiquities, Colonial Williamsburg, the James River Institute for Archaeology, the College of William and Mary, and the National Park Service (Moodey and Brown 1991).

Unfortunately, many of these data — artifact inventories, site records, and reports — are incompatible, inconsistent, or inaccessible. Mouer used only two assemblages to test his model, and yet still experienced some difficulties because of differential recovery methods and ceramic nomenclature (Mouer 1987). Anne Yentsch, in her recently-published study of minimum vessel counts for ceramics from 17th-century sites, found that she could use only well-reported material from sites excavated nearly two decades ago at Kingsmill and Governor's Land (Yentsch 1990). But clearly these materials hold great promise for the study of settlement patterns at the regional scale.

To take advantage of this information, however, more effort should go into completing reasonably consistent artifact inventories and catalogues, including vessel form analysis with agreed-upon nomenclature. Comparative research would also benefit from some methodological discipline pertaining to data recovery techniques, particularly within the Tidewater Virginia area, where rigorous multi-stage sampling of 17th-century sites has been lacking. Above all, more interpretive reports are called for that use current perspectives in historical archaeology. These reports, and the data on which they are based, should be made available within the archaeological community on a routine basis.

Archaeologists may reasonably expect to play an important role in the study of early Chesapeake colonial history by contributing important material insights into how that history was affected by the British colonial system and the world economic system as a whole. But that role will remain largely

unappreciated by a larger audience of scholars until archaeologists move beyond the site and individual settlement focus, and the "composite plan" view of settlement patterning it has encouraged. No matter what perspective one takes to the problem of regional settlement patterns, comparative data is a necessity. Thanks to Deetz's discoveries at Flowerdew, there is at least one model, descriptive of real archaeological data, that can provide direction for such research.

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"TOOLES OF ALL SORTS TO WORKE"[1]: A BRIEF LOOK AT COMMON WOODWORKING TOOLS IN 17TH-CENTURY VIRGINIA

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INTRODUCTION

Tools, usually made of stone or bone, have long been of great interest to Chesapeake archaeologists. Prehistorians spend a significant portion of their time studying the ways tools were made and the indications of their uses to determine how people lived. Using comparisons of the materials, manufacturing technologies, and designs of tools, those archaeologists and anthropologists have been able to determine trading patterns and cultural relationships between peoples. To most historical archaeologists, curators, social historians, and even historians of technology, however, "trade tools" — hand tools and implements used in the manufacturing trades — of the past three or four centuries have long been second-class objects. We have not asked the same questions of them nor applied the same investigative methodologies to them that we have applied to prehistoric materials or, for that matter, many types of later artifacts. We have not noted the specific, often detailed ways in which old tools differ from each other and from our own modern versions, and we rarely have pondered the reasons for, or the significance of, those differences. We have not looked seriously at patterns of tool ownership and use, and possibly of more importance, we rarely have delved into the historical record to expand our understanding of the significance of the individual tools and tool groups we have recovered.

There are valid explanations why historical archaeologists have neglected tools. We excavate them in far fewer numbers than ceramics, glass, hardware, and structural remains. Many recovered tools are seriously decayed, making their study difficult and their conservation complex and expensive. Little published information about pre-19th-century tool forms is available, and as a result, the identification and analysis of recovered tools, beyond determining their generic functional types, is difficult. Even when analysis proceeds to that extent, we frequently find we have only enough information to suggest the basic types of craft activities that took place on the recovery site. Unless we make it a priority to carefully study period craft practices, even those conclusions can be clouded by our romanticized perspective regarding hand craftsmanship.

The purpose of this paper is twofold. The first is to examine, in the context of the historical record, a selection of 17th-century woodworking tools found at several Chesapeake sites. After presenting a brief review of the documentary evidence regarding tools used in 17th-century Virginia manufacturing trades, I will concentrate on those tools used for general-purpose woodworking and briefly describe their types and functions. The second purpose is to demonstrate that tools can be powerful cultural indicators through which we can learn about the people who owned and used them and about the work they undertook. I do not claim that either purpose will be definitively fulfilled. We are just beginning to study early trade tools, and many of my conclusions will be in the form of suggestions of possibilities. I hope that the approaches taken will pique the interest of historical archaeologists, however, if only to the extent that we begin to value tools as significant cultural artifacts worthy of much greater attention and further study.

TRADE TOOLS IN 17TH-CENTURY VIRGINIA: THE HISTORICAL RECORD

A considerable amount of information about late 18th-century trade tools and their uses in the colonies is available to us in the form of surviving tools, tool catalogs, documents (such as probate inventories, newspaper advertisements, and store records), technical encyclopedias, prints, trade cards, and a wealth of surviving wooden products. However, many of these sources of information, especially Chesapeake-specific sources, do not exist for earlier periods. Few trade tools dating to the early 18th century or before survive here or in England. The first English tool catalogs date to the second half of the 18th century. Pre-1700 trade cards and newspaper advertisements featuring tools are rare. Few 17th-century wooden products survive from the Chesapeake to reveal tool use.

Finally, the number and variety of 17th-century Chesapeake probate inventories and other records mentioning tools are small compared to documentation surviving from the 18th century.

Fortunately, we have Randle Holme's 1688 Academy of Armory (1972) and Joseph Moxon's Mechanick Exercises, or the Doctrine of Handy-Works Applied to the Arts of Smithing, Joinery, Carpentry, Turning, [and] Bricklayery (1989). Holme, in his compendium of heraldic devices, describes and illustrates, albeit crudely, a variety of trade tools. Moxon's work was the first English how-to-do-it book of trade practices, originally released in pamphlet form beginning in 1678. It gives us detailed information about the tools and technology of these late 17th-century English trades and, hence, potentially reliable insights about their counterparts in America.

In contrast, little information of any sort about tools survives from the middle and early years of the 17th century. For this period, any mention of tool types or use, a single find of a dated tool, or the discovery of a documented product of the region can lead to major revelations. We know more about earlier trade tools and Continental tools than we do about Anglo-American tools of the 17th century. Excavations at medieval sites in England have recovered a sizable number of tools. In addition, architectural historians and decorative arts students have begun to look at medieval structures and products from a technical perspective to determine tool use, and recent studies of medieval paintings and manuscripts have led to insights about building tools and techniques (Goodman 1964; Basing 1990).

The documentary information about specific tool types used during the first years of settlement in Virginia is limited to incidental comments in narratives and administrative records. They indicate that tools were important Indian trade items from the first years of European contact. But, once settlers were faced with the harsh realities of the Chesapeake, there was a concern that the colony's tools be carefully conserved. During the early years at Jamestown, John Smith noted that "our best commoditie was Yron which we made into little chissels" (Hatch and Gregory 1962:265). Faced with the loss of tools through carelessness, abuse, and black market trading, the colony's "Lawes Divine, Morall, and Martiall" (1612) directed that colonists abusing or stealing tools did so "vppon paine of whipping" (Force 1963:15).

Slightly later documents suggest that the Virginia Company and its investors were well aware of the need for tools and sought to improve their supply. Tools figure prominently in a 1618 list of supplies and provisions for settling Smythes Hundred. The 35 men to be sent to Smythes Hundred were equipped with clothing, shoe leather, thread, awls, pitch, rosin, arms and armor,

pickaxes, shovels and spades, agricultural tools, kettles, fishing equipment, nails, pit saws, cross-cut saws, hand saws, hewing and broad axes, hatchets, hammers, crows (for pulling nails), iron wedges, a grindstone, files, piercer bits, gimlets, chisels, and augers. "Tooles for a Brick yard" and "A greate piece of Bellows and Anville for a Smith" were included in an addendum of "things wanting" (Kingsbury 1933:94-98). The list of expenses incurred in furnishing the Margaret, a ship outfitted from July to September 1619, for the establishment of Berkeley Hundred, contained large quantities of tools for carpentry, coopering, and tailoring (Kingsbury 1933:178-189) (see Appendix). Nevertheless, many colonists must have arrived without adequate implements to deal with the wilderness, for several years later, the Company made it a point to inform prospective settlers of the specific tools they would need. The Company's well-known 1622 broadside (Figure 1) recommended that those who "transported themselves" take along, in addition to agricultural tools and household implements, a wide range of tools for woodworking: axes; saws; hammers; chisels; augers, piercers, and gimlets for boring holes; hatchets; froes for splitting; and a grindstone (Goodman 1980:26-27). It is not surprising that these implements were general-purpose woodworking tools, the basic kit of tools necessary for rudimentary household and farm construction and maintenance.

After the demise of The Virginia Company in 1624, the documentary trail grows sparse until the third quarter of the century, when probate inventories that list the tools owned by individual householders and artisans and stocked by storekeepers begin to appear. These inventories reveal that colonists had access to a selection of carpentry, masonry, coopering, shoemaking, textile making, tailoring, needlework, and — to a lesser extent — metalworking tools. Historians of the Chesapeake have begun to tabulate broad categories of tool ownership during the late 17th century (Walsh 1977; Carr 1988; Russo 1988; Carr and Walsh n.d.). Their investigations allow us to determine who owned tools and to examine changing patterns of tool ownership. As a result, we are able to determine the basic types of craft activities pursued. To my knowledge, however, no one has comprehensively surveyed 17th-century Chesapeake probate and store inventories for the purpose of recording what specific tools were owned or offered for sale. Only with that information in hand can we determine what groups, or kits, of tools individuals owned, and draw conclusions about the specific tasks they undertook and the ways they went about them.

Nevertheless, the findings of these historians, as well as a preliminary study of 26 probate inventories of Virginia planters, artisans, and storekeepers from six Virginia counties dating from 1646/7 to 1700 (Table 1), supports Governor Edmund Andros' contention in his report to the Board of Trade in

THE INCONVENIENCIES THAT HAVE HAPPENED TO SOME PERSONS WHICH HAVE TRANSPORTED THEMSELVES

from *England* to *Virginia*, vvithout prouisions necessary to sustaine themselues, hath [illegible] *Progresse of that noble Plantation: For preuention of the like disorders* heereafter, that no man suffer, either through ignorance or misinformation; it is thought requisite to publish this short declaration: wherein is contained a particular of such necessaries, *as either priuate families or single persons shall haue cause to furnish themselues with, for their better support at their first landing in* Virginia; *whereby also greater numbers may receiue in part, directions how to prouide themselues.*

Apparrell.

	li.	s.	d.
One Monmouth Cap	00	01	10
Three falling bands	—	01	03
Three shirts	—	07	06
One waste coate	—	[illegible]	[illegible]
One suite of Canuase	—	07	06
One suite of Frize	—	10	00
One suite of Cloth	—	15	00
[illegible]	—	[illegible]	—
[illegible]	—	[illegible]	[illegible]
One paire of garters	—	00	10
One doozen of points	—	00	03
One paire of Canuase sheets	—	08	00
Seuen ells of Canuase, to make a bed and [illegible] which with the bed [illegible]	—	08	00
Fiue ells coorse Canuase, to make a bed at Sea for two men, to be filled with straw, iiij.s	—	05	00
One coorse Rug at Sea for two men, will cost vj.s. is for one	—	—	—
	04	00	00

Victuall.

	li.	s.	d.
Eight bushels of Meale	02	00	00
Two bushels of pease at 3.s.	—	06	00
Two bushels of Oatemeale 4.s. 6.d.	—	09	00
One gallon of *Aquauitæ*	—	02	06
One gallon of Oyle	—	03	06
Two gallons of Vineger 1.s.	—	02	00
	03	[illegible]	[illegible]

Armes.

	li.	s.	d.
[illegible]	—	[illegible]	[illegible]
One long Peece, [illegible] neere Musket bore	01	02	—
[illegible]	—	05	—
One belt	—	01	—
One bandaleere	—	01	06
Twenty pound of powder	—	18	00
Sixty pound of shot or lead, Pistoll and Goose shot	—	05	[illegible]
	03	09	06

Tooles.

	li.	s.	d.
Fiue broad howes at 2.s. a piece	—	10	—
Fiue narrow howes at 16.d. a piece	—	06	08
Two broad Axes at 3.s. 8.d. a piece	—	07	04
Fiue felling Axes at 18.d. a piece	—	07	06
Two steele nand sawes at 16.d. a piece	—	02	08
Two two-hand sawes at 5. s. a piece	—	10	—
One whip-saw, set and filed with box, file, and wrest	—	[illegible]	—
Two hammers 12.d. a piece	—	[illegible]	[illegible]
Three shouels 18.d. a piece	—	[illegible]	[illegible]
Two spades at 18.d. a piece	—	[illegible]	—
Two augers 6.d. a piece	—	[illegible]	[illegible]
Sixe chissels 6.d. a piece	—	[illegible]	[illegible]
Two percers stocked 4.d. a piece	—	00	08
Three gimlets 2.d. a piece	—	00	06
Two hatchets 21.d. a piece	—	03	06
Two froues to cleaue pale 18.d.	—	03	00
Two hand bills 20. a piece	—	03	04
One grindlestone 4 s.	—	04	00
Nailes of all sorts to the value of	[illegible]	[illegible]	—
Two Pickaxes	—	[illegible]	—
	06	[illegible]	[illegible]

Houshold Implements.

	li.	s.	d.
One Iron Pot	00	07	—
One kettle	—	06	—
One large frying pan	—	[illegible]	[illegible]
One gridiron	—	01	[illegible]
Two skillets	—	05	—
One spit	—	[illegible]	—
Platters, dishes, spoones of wood	—	[illegible]	—
	[illegible]	[illegible]	[illegible]

For a family of 6. persons and so after the rate for more.

For a family of 6. persons, and so for more or lesse after the rate.

	li.	s.	d.
For Suger, Spice, and fruit, and at Sea for 6 men	00	[illegible]	[illegible]
So the full charge of Apparrell, Victuall, Armes, Tooles, and houshold stuffe, and after this rate for each person, will amount vnto about the summe of	12	[illegible]	—
The passage of each man is	06	[illegible]	—
The fraight of these prouisions for a man, will bee about halfe a Tun, which is	01	10	—
So the whole charge will amount to about	20	00	00

Nets, hookes, lines, and a tent must be added, if the number of people be greater, as also some kine.

And this is the vsuall proportion that the Virginia *Company doe bestow vpon their Tenants which they send.*

For one man, but if halfe of your [illegible] haue armour it is sufficient so that all haue Peeces and swords.

Whosoeuer transport himselfe or any other at his owne charge vnto *Virginia*, shall for each person so transported before Midsummer 1625. haue to him and his heires for euer fifty Acres of Land vpon a first, and fifty Acres vpon a second diuision.

Imprinted at London by FELIX KYNGSTON. 1622.

FIGURE 1. Virginia Company Broadside, 1622. Courtesy of the John Carter Brown Library at Brown University.

1697 that most Virginians occupied themselves planting tobacco and corn. If we are willing to accept the premise that the Governor did not consider building construction or general-purpose woodworking as "manufactures," the trade tools enumerated in the inventories concur with his statement that the only manufactures carried on were tanning and shoemaking, linen and woolen production when those commodities were not supplied from England, and the making of barrel staves for export. Andros goes on to say that only recently had ships been built in Virginia, and even their iron work, rigging, and sails came from England (Governor's Correspondence 1691-9).

The Governor may have downplayed colonial manufacturing to some extent. Nevertheless, based upon the documentary evidence regarding tools, it appears that after the first burst of attempts to establish specialized manufactures, such as glass and ironmaking, the later 17th-century colonists in Virginia curtailed those efforts and relied on English imports whenever possible. We have little documentary information about the relatively small quantities of tools that might have been used in trade activities other than general woodworking, coopering, and basic textile and leather working.

While the inventories examined list a few tools for coopering and leather and textile production, and future research may reveal information about tools used in other trades such as blacksmithing, gunsmithing, and wheelwright's work, the tools about which we currently have the most documentary information are those for domestic woodworking. The occurrence of these tools in the Virginia inventories is presented in Table 1. The most commonly owned tools during the latter years of the 17th century were the same types as those recommended for settlers in the century's first decades: axes, saws, chisels, wedges, hatchets, froes, boring tools, hammers, grindstones, adzes, and drawknives (adzes and drawknives, although not included in the Smythes Hundred or broadside listings, appeared in the supplying of the Margaret). Documents reveal the names of these tools, but they tell us little about their exact forms, the specific jobs they could be used to perform, and their qualities. For that type of information we have to turn to archaeology. Fortunately, but not coincidentally, we can do that because these are the same types of tools that we most frequently find on 17th-century Chesapeake archaeological sites.

TOOLS FOR WOODWORK

Although colonists universally relied upon a host of wooden products, and woodworking in a variety of forms no doubt comprised some of the most frequently practiced craft activities in the early Chesapeake, the recovery of

woodworking tools is probably disproportionately large in relation to the quantities and varieties of all types of tools used. Trade tools found their way into the ground through a very selective, and restrictive, group of events.

Many trades practiced in the 17th-century Chesapeake were carried out indoors. If they were not actually performed inside a dwelling or shop — as was probably the case with most leatherworking, textile manufacture, and gun repair other than forging — they were undertaken either under a covering of some sort or in a very restricted outdoor area. Examples of this are blacksmithing or coopering, often conducted under a shed, or a shoemaker working in his yard on a pleasant day. Under these circumstances, probably few tools were lost at all.

It is likely that most artisans who depended upon their tools for their living tended to keep close watch on their working implements. If they dropped a tool, they noted the fact and picked it up, a task that is relatively easy in a closed environment. Most trade tools were of a size easily recovered, and if our 17th-century indoor craftsmen did drop a tool and lose it, then it most frequently would have been something very small, such as a needle, a shoemaker's tack, an awl, or a small drill bit, and often not worth a diligent search. Almost all of these small tools were iron or steel, and few have survived in the earth.

Few 17th-century trade tools were actually consumed through their use. Granted, edge tools were sharpened away and some tools broke, but even many of these could be re-edged or repaired, or the iron or steel of which they were made could be refashioned into something else. Artisans have always had a reputation for being conservative, and unless possessed by a fit of temper, most would never have thrown a potentially repairable tool onto the trash pile. No doubt some bits and pieces of iron or steel tools were eventually thrown away because they were deemed useless, but the vast majority of tools that were disposed of probably were made of wood or some other organic material that was easier to fabricate anew than to try to repair (17th-century glues were not usually adequate for repairing organic material subject to the stresses endured by most tools). Many of these organic tools or tool components may have gone directly into the fire, but even if that was not the case, they rarely have survived burial. While we might at first expect to find an occasional tool made of non-ferrous metal, it is important to note that, with the exception of thimbles and possibly pewter molds, few 17th-century trade tools were made of pewter, copper, brass, or bronze.

So what then is in the ground for us to find? Certainly we can expect to recover a few fragments in trash pits and to occasionally find remnants of tools lost as a result of sudden catastrophes: fires, military actions, and floods. Barring such misfortune, however, the tools most likely to be buried were those

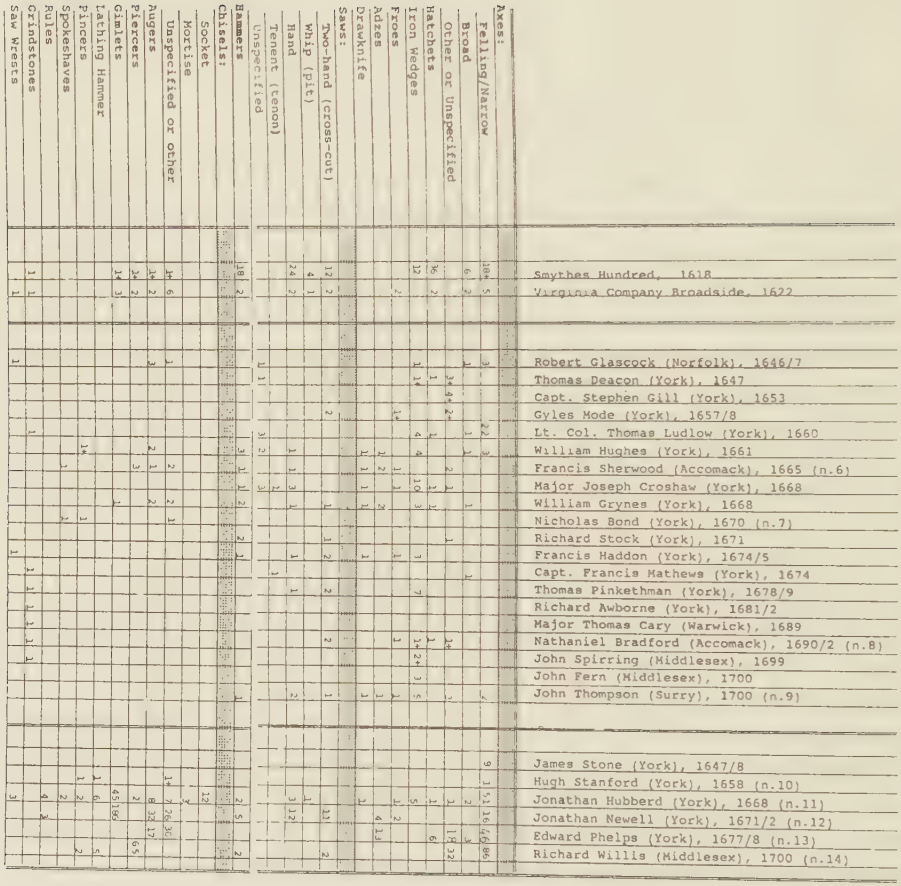

TABLE 1. Woodworking Tool Ownership in 17th-Century Virginia Probate Inventories

NOTES TO TABLE 1

(1) With the exception of those from York County, which comprise the majority of probate inventories in this survey, the inventories examined do not represent the results of systematic or comprehensive county record searches. I am indebted to Martha Katz-Hyman for identifying York County inventories that contain listings of trade tools, and to Harold B. Gill for supplying me with other inventories, either directly by allowing me access to his notes regarding Virginia

tradesmen and stores, or indirectly through his compilation of inventories whose contents are listed "room-by-room." Inventories were chosen because they included listings of individual tools rather than the much more usual "Parcell of carpenter's tools" or the like. All inventories are taken from the Books of Wills and Deeds of the indicated counties.

(2) Tools in bold were recommended in the 1622 Virginia Company Broadside.

(3) Slashed dates indicate dates taken/dates recorded.

(4) Tool descriptors, although often enlightening, are omitted for brevity.

(5) In addition to woodworking tools, some decedents also owned tools for leatherwork, metalwork, and textile production.

(6) Francis Sherwood was a cooper. His estate also contained five pairs of compasses, three jointers, three howels, three heading knives, two crosses (crozes), two round shaves, two cooper's vices, a file, a pair of iron compasses, a cresset, and a bung borer. Sherwood is one of the very few 17th-century Virginia tradesmen whose inventory includes specialized woodworking tools.

(7) Nicholas Bond (1670) also owned a fore plane and a hand plane.

(8) Nathaniel Bradford (1690/2) was probably a shoemaker and tanner.

(9) John Thompson also owned "a sett of Coopers tooles" and "15 Indian hatchetts."

(10) These tools were likely for Stanford's "own use." Some other store inventories also contain tools for their owner's personal use.

(11) Jonathan Hubbard's store (1668) also included: six lathe lines(?), two bung bow(?), two round shaves, three cooper's compasses, a heading knife, a cooper's adz, a cooper's ax, a cross and cross stock (croze), 15 bits, 12 carving tools, a pair of carpenter's compasses, two rie(?) bits, a plow plane, three plow plane irons (blades), three smoothing planes and irons, a fore plane and two irons, a long plane and two best irons, and two chalk lines with rolls, as well as tools for non-woodworking trades. An ax and five wedges were designated as household stuff.

(12) Jonathan Newell's store (1671/2) also included three round shaves and a pair of large compasses.

(13) Eleven of Edward Phelps' axes are listed as "lopping axes." His inventory also includes 53 planing irons and 10 "iron polls"(?).

(14) Richard Willis' inventory also includes two ragg stones for sharpening.

odds and ends (also usually fragments) that found their way into a corner of a shed and were later forgotten or, more significantly, those tools that were used away from a fixed workplace or over a site large or complex enough that they were misplaced or not practically retrievable.

That is exactly what the pattern of survival supports. We find agricultural tools and pieces of hardware that were unknowingly dropped in the field or on the way to or from the garden. We find building construction tools that easily could have fallen into an inaccessible recess in the structure or into a builder's trench. We find wood harvesting and splitting tools and farm implement- and building-maintenance tools that were left where they broke or where a job was completed — at an outbuilding, at the woodpile, or in the woods — and later forgotten.

Given this pre-selection of lost tools and the small chance for survival of tools made of organic materials, it is no wonder that the tools we recover are principally general-purpose woodworking tools and, of those, a very consistent range of types. The most commonly recovered, essentially intact, trade tools are the large iron or steel tools that our knowledge of trade practices indicates were used in the situations described above: axes, wedges, carpenter's hammers, and heavy chisels. We find fragments of saws that either were discarded or were put aside in the expectation of re-using their steel. We also recover a surprisingly large number of large drill bits or gimlets, possibly because they were used in quantity for construction and repair, and their small size allowed them to be easily misplaced.

An examination of tools recovered from 17th-century contexts in Virginia and Maryland has revealed examples of all these tools, and a small number of other general-purpose woodworking tools as well. Since this group of tools, by and large, reflects both the types with which early settlers most frequently equipped themselves and the types most commonly owned by later 17th-century colonists, its examination and analysis presents a good starting point for studying 17th-century trade tools and their implications.

The discussion of the tool types that follows is based only on examples that appear to derive from diagnostic 17th and early 18th-century contexts. I have not included many probable 17th-century tools that were retrieved from later 18th-century contexts, nor examples from sites excavated before archaeological practice involved the determination of dated contexts. As a result, I have eliminated many tools found in the early excavations at Jamestown, Yorktown, and Williamsburg. While this severely limits the tool sample studied, at present it seems the best course, since one of our purposes is to develop firm typologies of 17th-century types. Once those are established, it is quite likely

that at least some currently undated tools can with certainty be identified as 17th-century examples. Please also note that while I have had an opportunity to examine the entire range of tools recovered from a few sites (Flowerdew, St. Mary's City, Causey's Care, Martin's Hundred, and Mathews Manor), in the case of others, I have studied and present here only examples selected for inclusion in study collections or individual tools brought to my attention by excavators or conservators.

Axes and Hatchets

By far the most frequently owned trade tools were for felling timber and reducing it to workable pieces of wood. Of these, axes of one type or another were the most common (Figures 2 and 3). Thirteen of the 20 personal inventories (as opposed to storekeepers' inventories) listed one or more axes. Merchants kept much larger stores. Edward Phelps of York County included 56 axes in his 1677 store inventory, and Richard Willis, a Middlesex County storekeeper, had 118 in 1700.

The basic implement for chopping down trees and chopping off limbs was the felling ax — "felling" in the sense of making the tree fall. Once a tree had been cut down with a felling ax, there were several ways to reduce it to workable pieces. If a large square balk was needed as a framing timber for a building, for example, the workman could square the log using a felling ax or, more efficiently, a broad ax. The workman pared off slabs of wood along the side of the log, leaving a relatively flat surface. Both types of axes could be used to roughly shape wood for joining.

Traditionally, the distinction between felling and broad axes is a straightforward one. Although both were made in a variety of forms, felling axes normally have narrower blades that are symmetrical when viewed from above and are sharpened with a double bevel like that of a knife. Their blade shape, balance, and sharpening are designed for chopping. Broad axes, on the other hand, have broader, more radically flaring blades. Those intended for hewing are sharpened on one side only, like a chisel or plane blade, and their eyes are offset so that the back of the blade is flat. This blade shape and sharpening suits them for the paring motion used to square logs.

Many of the axes recovered archaeologically, however, pose problems with this typology. The axes illustrated in Figure 2 seem to fit the traditional definition of felling axes. The classification of others as broad axes (see Figure 3) is much less certain. They are all of a similar pattern, with the symmetrically flaring blades and relatively broad edges we associate with broad axes, yet all but

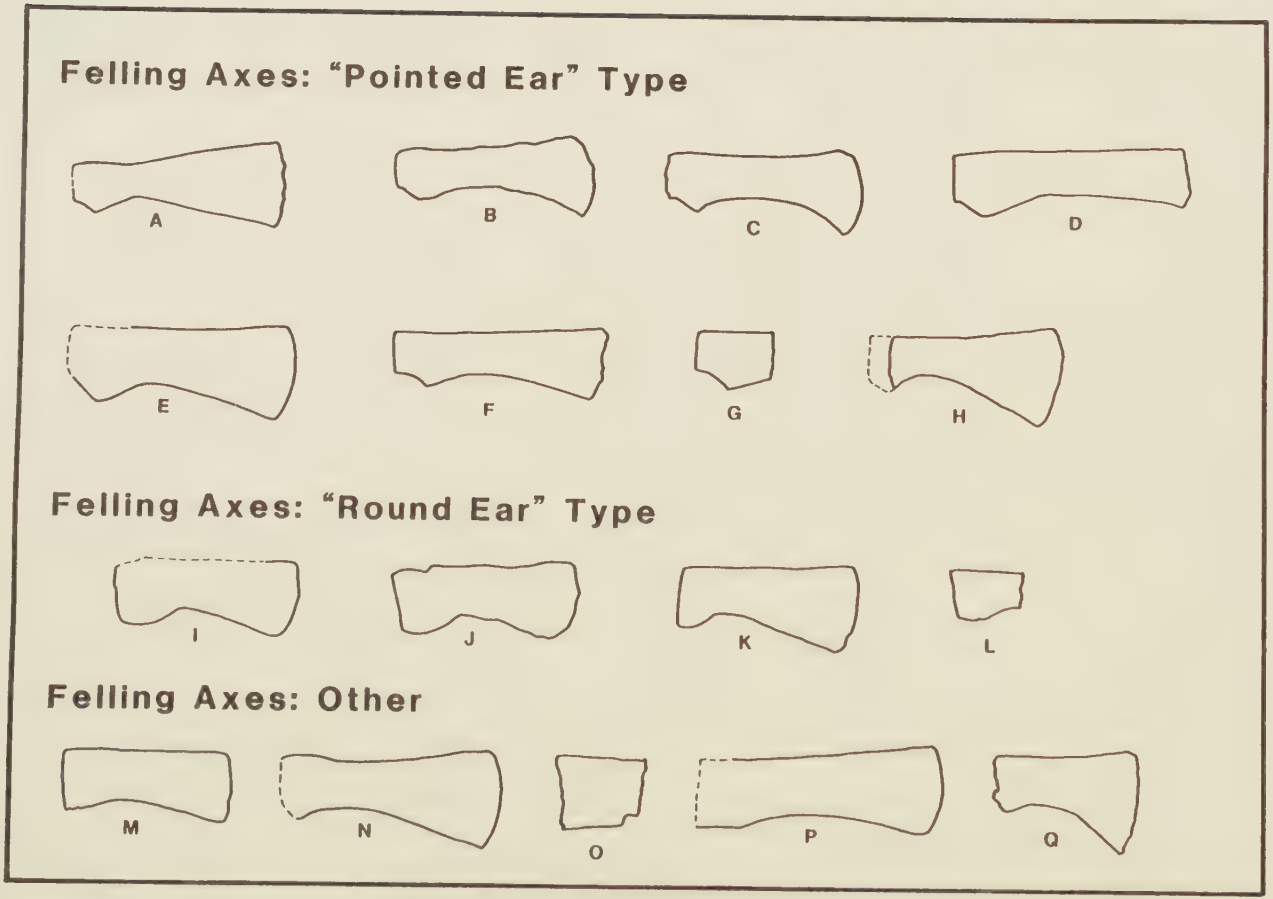

FIGURE 2. Felling Axes

CAPTION FOR FIGURE 2

FELLING AXES: A. Martin's Hundred (1738A) 1620-45. B,C. Jordan's Point (44PG302/F-110 EU#766) 1620-35. D. Kingsmill Tenement (KM562D), early-to-mid 17th century. E. Jordan's Point (44PG300/1E 106) 1620-35. F,G. Mathews Manor (Weber Collection), mid-17th century. H. St. Mary's City (STI-13-1468MM/AH) 1635-1700, broken through eye. I,J. Jordan's Point (44PG302/F-110S EU#766) 1620-35. K. Flowerdew Hundred (44PG86) probably 1620-30 (surface find). L. Martin's Hundred (2076B) 1620-40, eye fragment. M. Harbor View Fort (SK192/19Y) 1620-30. N. Jordan's Point (44PG300/7E 195) 1620-35. O. Martin's Hundred (2080A) 1620-40, eye fragment (original blade configuration unknown). P. Jordan's Point (44PG300/1E 68) 1620-35. Q. Drummond site (GL242) 1680-1710 (possibly to ca. 1720). (All 1/8 scale.)

CAPTION FOR FIGURE 3

BROAD AXES: A. Martin's Hundred (1755E) 1620-45, broken through eye. B. Martin's Hundred (Ax: 4115A #92, socket: 4143A #2) ca. 1620. C. Martin's Hundred (2115A) 1620-40. D. Chesopean site (44VB48) probably 1625-50. E. Pettus site (KM152C) mid-to-late 17th century, blade only. F. Jordan's Point (44PG332/1B) 1620-35, most of blade missing. G. Jordan's Point (44PG300/1F) 1620-35, a hewing ax with one side flat. H. Mathews Manor (WS203, Weber Collection) mid-17th century. (All 1/8 scale.)

SPECIAL PURPOSE AXES: I. Cooper's ax, Martin's Hundred (1771J) 1620-40. J. Cooper's ax, Mathews Manor (WS238, Weber Collection) mid-17th century. K. "Bearded" ax, Causey's Care (44CC178/2) pre-1665, eye broken off. L. Jordan's Point (44PG300/1E 61N) 1620-35. (All 1/8 scale.)

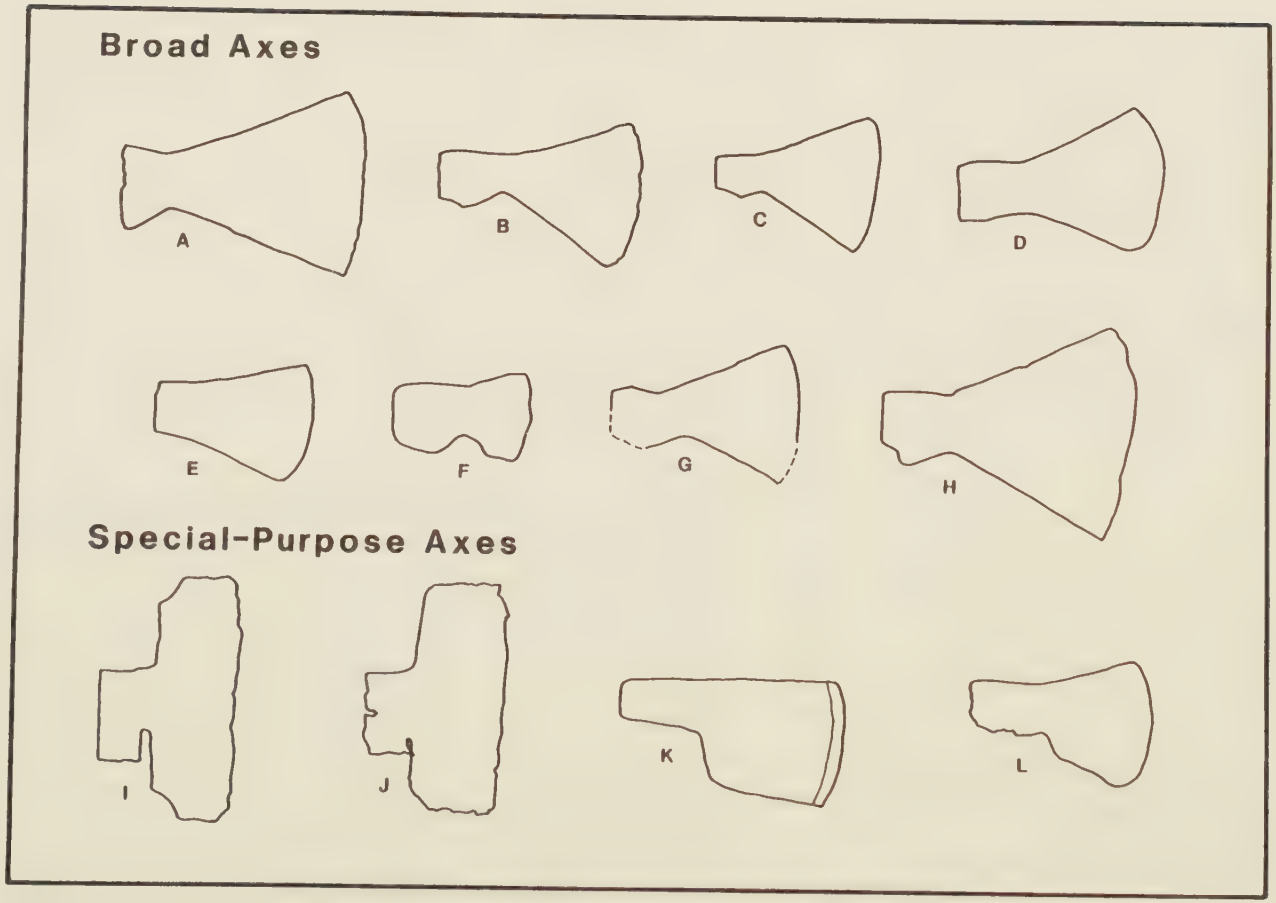

FIGURE 3. Broad and Special Purpose Axes

one (Figure 3G) are symmetrical when viewed from the top and appear to have been sharpened with double bevels. This suggests either that axes of this form were intended for chopping rather than hewing, or that many 17th-century hewing axes had the same basic eye configuration and sharpening bevels as felling axes. Either conclusion makes it difficult for us to determine whether the 17th-century term "broad" refers only to the relative width of the blade or to the intended function of the tool. Since these axes have been found in two distinct sizes, however, it is possible that the narrower of the "broad" axes (with the exception of Figure 3G) are actually a type of felling ax, while the huge axes from Mathews Manor and Martin's Hundred (Figure 3A and H) are the only true broad axes, in the 17th-century sense, recovered. Given the documentary evidence, this ratio of broad to felling axes is not improbable. We also have recovered several special-purpose broad axes, and they are illustrated as such in Figure 3.

The 17th-century probate inventories also include "narrow" axes. We have thought that felling and narrow axes were the same tools, but it may be that the long, narrow axes (Figure 2D and 2F) were, strictly speaking, "narrow" axes, while the chopping axes with wider blades were "felling axes." Even if that is the case, both types could have been referred to colloquially as "narrow" to distinguish them from broad axes.

Hatchets, like axes, traditionally have been made either for general-purpose chopping, and sharpened with a bevel on both sides of the blade, or for hewing, and beveled on only one side. Both types were known in 17th-century Virginia, judging by inventory entries of "joiner's" (hewing type), "broad" (possibly hewing), and "narrow" (chopping) hatchets. The distinction between small axes and large hatchets is often a difficult one to draw, and some of the smaller axes illustrated could have been mounted on short helves and intended for lighter work. To my knowledge, we have recovered no tools that are indisputably hatchets.

Wedges, Froes, Adzes, and Drawknives

Another method for converting logs to usable wood was by splitting. After small logs were cut to suitable lengths, they could be split using an ax. However, one could work much larger stock more quickly and accurately by driving iron or wooden wedges into the wood using a large wooden mallet or club (Figure 4). One could also split wood by driving a froe — a long, thin wedge with a handle at right angles to the blade — into the end grain of shorter logs to rive off wedge-shaped boards suitable for a variety of applications from shingles and

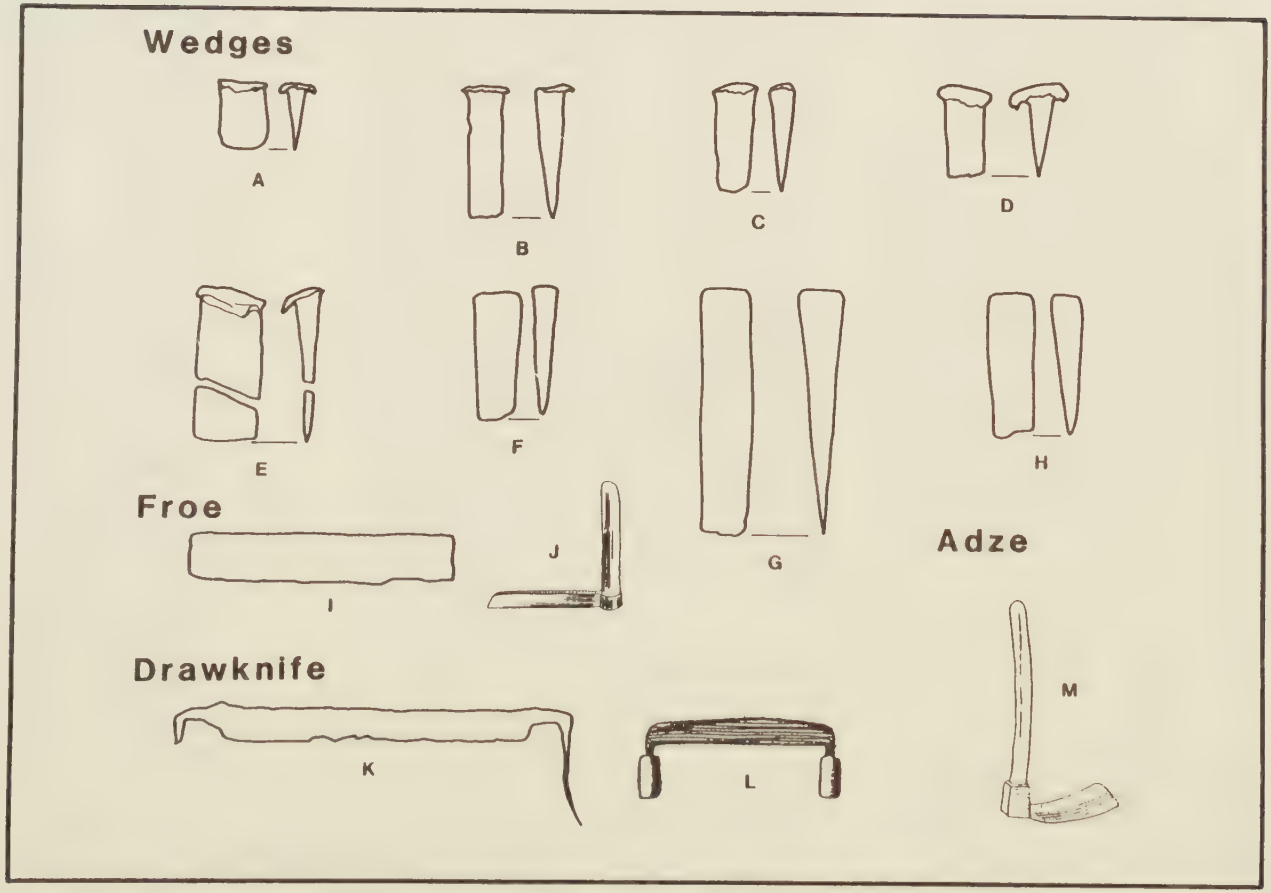

FIGURE 4. Wedges, Froes, Drawknives, and Adzes

CAPTION FOR FIGURE 4

WEDGES: A. Flowerdew Hundred (44PG65/193N3D-4) "Enclosed Compound" 1618-60. B-D. Martin's Hundred (1738A, 1752, 1731) 1620-45. E. Flowerdew Hundred (44PG65/122,123-40) "Enclosed Compound" (surface) 1618-60. F. Causey's Care (44CC178/39/2P) pre-1665. G. Pettus site (KM151C) mid-to-late 17th century. H. Kingsmill Tenement (KM353B) early-to-mid 17th century. (All 1/8 scale.)

FROE: I. Pasbehay site (JC298/105G) (1625-1650) (1/8 scale). J. Illustration adapted from Smith (1975) (not to scale).

DRAWKNIFE: K. Causey's Care (44CC178/39/1/2L) pre-1665 (1/8 scale). L. Illustration from Moxon (1989) (not to scale).

ADZE: M. Illustration adapted from Nicholson (1812) (not to scale).

CAPTION FOR FIGURE 5

TWO-HAND (CROSS-CUT) SAWS: A. Martin's Hundred (3012C) ca. 1620. B. Basse's Choice (IW13/102A) 1620-40, one of two end-pieces, possibly from same saw, that survive. C. Causey's Care (44CC178/39/2P) pre-1665. (All 1/8 scale.) D. Illustration from Moxon (1989) (not to scale).

WHIP OR PIT SAWS: E. Illustration adapted from Smith (1975) (not to scale). F. Causey's Care (44CC178/39/6L) pre-1665. G. Causey's Care (44CC178/39) pre-1665. H. Tooth fragments, Flowerdew Hundred (44PG65/190-191) "Enclosed Compound" 1618-60. I. Causey's Care (44CC178/39) pre-1665. J. Causey's Care (44CC178/6/8H) pre-1665. K. Pettus site (KM54A) mid-to-late 17th century. (All 1/8 scale.)

HANDSAWS: L. Illustration adapted from Moxon (1989) (not to scale). M,N. Jordan's Point (44PG302/F-110 EU#766) 1620-35. O. Jamestown (COLO J 10374, Project 103, Feature 40, Fill) no date, but probably early 17th century. P. Compass saw, Kingsmill Tenement (KM353C) early-to-mid 17th century. (All 1/8 scale.) Q. Illustration from Moxon (1975) (not to scale).

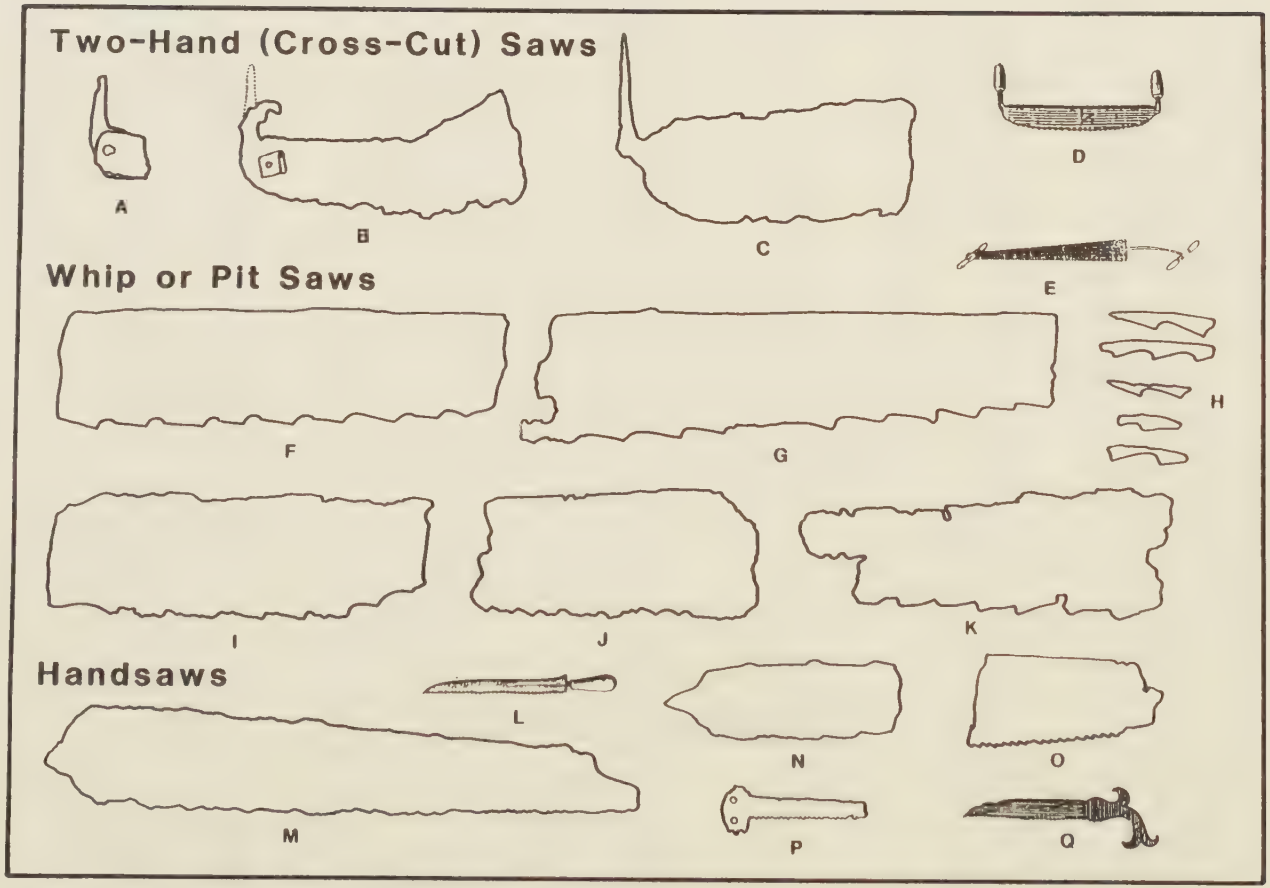

FIGURE 5. Saws

clapboards to furniture components. Froes also could be used to further split boards into the width desired and to split saplings into strips for barrel hoops, baskets, and laths.

Of the 20 decedents in the inventory survey who were not storekeepers, 14 owned at least one iron wedge or a froe or both. In spite of their apparent popularity, however, we have discovered relatively few wedges and froes on 17th-century sites. I know of only one froe, found at Governor's Land in a refuse pit (Figure 4I). The reason may be that, while a number of the other tools in our kit were employed in the immediate vicinity of the structures excavated, splitting tools often were used in more remote locations. Settlers may have used them most frequently to prepare building materials at the source of the wood rather than at the building location (Why haul the entire log when it is easier to haul the partially worked product?) or for splitting out products, such as fence rails, near both the source of the material and the site where they were needed. Both the froe and wedges vary little from later examples. Several wedges show extensive mushrooming as a result of being pounded (see Figure 4).

Adzes may have been used in conjunction with axes and splitting tools (Figure 4M). Looking vaguely like a hoe, these tools served to chop or pare away the irregularities of split or squared wood. Wielded by a skilled user, they were capable of leaving a surface that could be improved only by using planes or chisels. Adzes also were useful shaping tools, allowing the quick contouring of complex shapes such as ship's timbers or wooden water troughs. Twenty-four adzes appear in the inventories (two of these, owned by Francis Sherwood, could have been cooper's adzes), but 17 of them were in stores. That may explain why, to my knowledge, none have been recovered from 17th-century sites.

Another tool for smoothing and shaping was the drawknife. With the wood held in a clamp of some sort, drawknives were pulled over the work to shape and smooth shingles, clapboards, tool handles, and utensils. Seven appear in the inventories, of which one is in a store and another is described as a "cooper's." Only one has been recovered archaeologically, at Causey's Care, and it appears to differ little from general-purpose carpenter's drawknives of the 18th century (Figure 4K). Several other drawknife-like tools have been recovered from sites and identified as drawknives, but they have long, curved blades and probably had either two handles extending straight out from the blade or one straight and one down-turned handle. These tools are more likely currier's or tanner's knives, used in the production of leather.

Saws

Two-man, or cross-cut, saws were used to saw logs or beams into shorter sections, a method that was more accurate, resulted in less waste, and was often easier work than chopping. Sawn logs were also easier to split with accuracy, since the sawn end of the log allowed more precise positioning of wedges or froes. Seven of our 20 non-storekeeping decedents owned "two-hand" saws, and several fragments have been recovered from area sites (Figure 5). The most complete of these are saw ends with integrally forged tangs (the upturned "pin" over which the handle fits) found at Basse's Choice and at Causey's Care. The Basse's Choice example (Figure 5B), of which both ends survive as fragments, has sheet-metal "stops" rivetted to each end of the blade just forward of the handle tangs. These stops prevented the end of the saw from running through the log as the sawyers pulled the saw to and fro.

While two-man, cross-cut saws were used for the coarse dismembering of logs, hand saws and whip, or pit, saws imply a much more studied and careful approach to woodwork. There is only one reference in the inventories to a pit saw and it is in a store; however, fragments of them occasionally survive on early sites. They were used to saw logs into boards. One sawyer stood on the log, which was elevated on trestles or suspended over a pit, while a second sawyer, the "pit man," stood below and provided much of the muscle power. The top sawyer held the saw by a handle attached with a wrought-iron "tiller." The pit man's handle was a wooden or iron device called a "box" that was held onto the saw blade with a wedge. This permitted the sawyers to easily remove the box in order to withdraw the saw from the log. Pit sawing was a much slower process than splitting, but it resulted in more accurately dimensioned lumber with less waste.

The identification of small fragments of saws according to type is usually based upon the tooth configuration. Cross-cut saws traditionally have been sharpened with symmetrical teeth so that the saw cuts on both the forward and return strokes. Pit saws are intended to cut only on the down stroke, and therefore their teeth are raked in one direction. Most, if not all, fragments of large saws recovered from the Chesapeake area have hook-like teeth and therefore have been identified as pit saws. While that is probably the case, caution with these identifications is appropriate, because the teeth of the cross-cut saw recovered at Basse's Choice appear to have been similarly shaped. This may indicate a reworking of the saw, but it could also indicate that at least some 17th-century cross-cut saws were made with raked teeth.

Handsaws, which the inventories indicate were more commonly owned, were used then as now to cut boards to the size required and to shape wood for joining. Few handsaw fragments survive, probably due to the thinness of the iron or steel from which they were made, but a remarkable handsaw blade was recovered at Jordan's Point (Figure 5M). This blade is virtually complete and is of a style that apparently had completely disappeared in England and America by the 18th century. The handle was mounted on a tang extending from the center of the saw's heel, and the upper nose of the saw is decoratively shaped. The tang-end of another, similar saw was recovered at Jordan's Point (Figure 5N), and although from an undated context, a saw fragment with its toe similarly decorated was recovered at Jamestown (Figure 5O).

Hammers and Chisels

Seventeenth-century Virginians also commonly owned tools to assemble wooden objects. The use of hammers, which seven of our decedents owned, and nails provided the quickest means of accomplishing those tasks (Figure 6). The hammers most commonly recovered are claw hammers, equipped with a set of claws opposite the striking head and therefore useful not only to drive nails, but also to pull them. Typically, the top surfaces of these hammer heads form graceful arcs. The heads are relatively thin when viewed from the side, and their small, rectangular eyes are therefore rather shallow. Although not recovered with the heads, it is likely the hammers were mounted on their handles by means of metal straps that passed through the eyes and were peened over to secure the head. The handle in turn was fitted between the extensions of the straps below the head and riveted in place (see illustration from Moxon 1989, Figure 6G).

A hammer of very different form was excavated at Flowerdew (Figure 6F). Although its context could be later (1690-1730), it is almost certainly a very early type. Instead of a claw, it has a thin peen opposite the striking face that could be used to drive small brads in restricted locations. Although this generic form of hammer is still made today, the decoration of the head, like the decoration of the Jordan's Point saw, was of a style that apparently disappeared in the early years of the 18th century.

Nailing was a quick and acceptable way to join wood. Nevertheless, in many other situations, joinery, or the fitting together of wooden components by mating shapes, was much more effective and durable. The colonists possessed a range of tools for this work. We have already mentioned that axes, hatchets, adzes, saws, and drawknives could be used for shaping joints, but the basic tools for more refined work were saws and chisels. Chisels were made in three types:

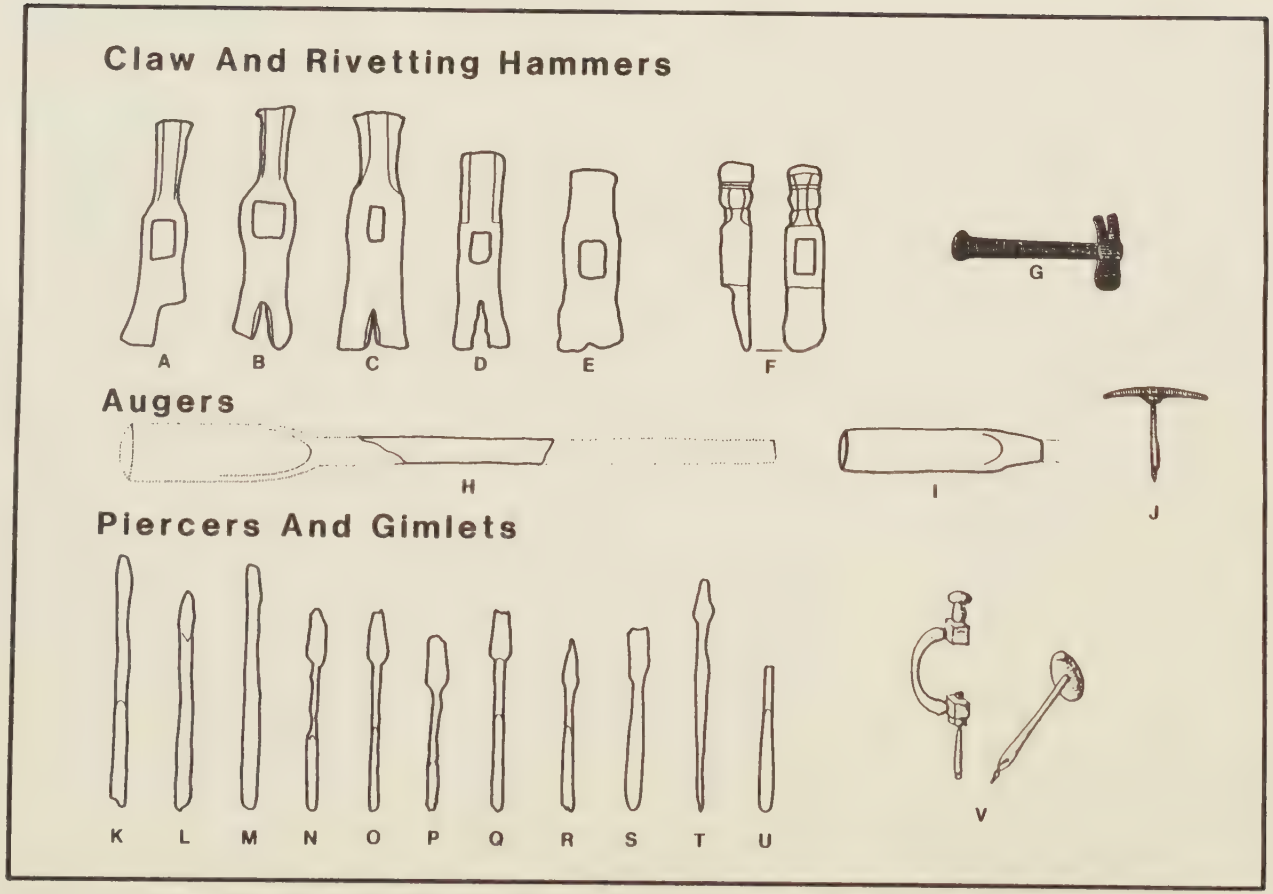

FIGURE 6. Hammers, Augers, Piercers, and Gimlets

CAPTION FOR FIGURE 6

HAMMER HEADS: A. The Maine (GL109A) pre-1626. B. The Maine (GL13B) pre-1626. C. Flowerdew Hundred (44PG64/2C/SWQ) "Temporary Pit Dwelling" 1618-30(?). D. Kingsmill Tenement (KM376B) early-to-mid 17th century. E. Kingsmill Tenement (KM415A) 1690-1710. F. Flowerdew Hundred (44PG66/508A1-53) "Flowerdew Town" earthfast structure 1690-1730. (All 1/4 scale.) G. Illustration from Moxon (1989) (the odd perspective shows both the top of the hammer head and the straps and handle) (not to scale).

AUGERS: H. Jordan's Point (44PG300/7/E) 1620-35, encrusted and configuration approximate. I. Kingsmill Tenement (KM393A) 1635-50 (this site may have 18th-century contamination). (All 1/4 scale.) J. Illustration from Moxon (1989) of what appears to be a Continental type auger (not to scale).

PIERCERS AND GIMLETS: K. Martin's Hundred (3013G) ca. 1620. L. Boldrup Well (44NN40/7V) 1630s. M. Kingsmill Tenement (KM393F) 1635-50. N. The Maine (GL110A) pre-1626. O. The Maine (GL127A) pre-1626. P. The Maine (GL124A) pre-1626. Q. Flowerdew Hundred (44PG65/190/53-22) "Enclosed Compound" 1618-60. R. Martin's Hundred (2103B) 1620-40. S. Causey's Care (CC178/6/36C) pre-1665. T. Kingsmill Tenement (KM415A) 1690-1710. U. Flowerdew Hundred (44PG65/190KZ-48) "Enclosed Compound" 1618-60. (All 1/4 scale.) V. Illustrations of piercer (left) and gimlet (right) from Moxon (1989) (not to scale).

tanged, socket, and mortise (Figure 7). Once again, there is a discrepancy between the inventories and the rate of recovery of these tools. While a large number of chisels were recorded in store inventories, only four of the other inventories indicate that the decedents owned them. Yet, we have recovered at least a dozen from period sites.

Tanged chisels have a pin-like tang that fit into a hole in the handle and a shoulder or bolster against which the end of the handle rested (Figure 7A-G). Most tanged chisels examined have a shank emerging from the bolster that is essentially square or rectangular in section until, several inches ahead of the bolster, it broadens quickly to form a slightly flaring blade. Woodworkers normally used tanged chisels for relatively light cutting and paring.

A number of tanged chisels from undated contexts at Jamestown (Figure 7D and E), one from Flowerdew (Figure 7F), and one from St. Mary's City (Figure 7G) — all of which could be 17th century in date — have "three-quarter" bolsters. A mortise chisel from Flowerdew (Figure 7Q) also has this type of bolster. Instead of wrapping completely around the shank, these bolsters form shoulders only on the shank's top and sides. This feature is otherwise very rare and does not, to my knowledge, appear on any 18th-century chisels. This design is odd since it would appear to accomplish no purpose. The bolster does not allow the entire chisel to lie flat against the work, as the lower side of the handle still would project below the chisel blade's bottom surface. This design may even weaken the handle mounting.

Socket chisels were used for heavier chopping and cutting (Figure 7I-O). The rear portion of the blade was forged in the shape of a hollow socket into which the forward end of the wooden handle fit, making the tool more durable when struck with a mallet. All socket chisels recovered from 17th-century contexts have sockets that are hexagonal in section. By the late 18th century, sockets were universally round in section.

While tanged and socket chisels were used to shape a variety of wooden objects that could not be easily chopped, sawn, or cut with a drawknife, or that required a greater degree of precision in their fabrication, mortise chisels were designed to perform a more specialized function (Figure 7P-R). They are narrow, long chisels used only to cut deep slots into wood in order to create the mortises of mortise-and-tenon joints. The only mortise chisels identified as such in the inventories were three in the store of Jonathan Hubbard of York County (1668). The three excavated examples examined have almost parallel tops and bottoms. One was designed to cut mortises 5/16 in. wide (Figure 7P), another to cut 3/8 in. mortises (Figure 7R). The third (Figure 7Q), with an unusually flaring blade and a three-quarter bolster, was found at Flowerdew. It is either

a variant type designed to cut approximately 1/2 in. mortises, or its blade, which without the flair would cut 1/4 in. mortises, was reforged in a make-do effort to produce a wider tool, possibly for use as a paring chisel.

Boring Tools

Boring tools also were used in joining processes (Figure 6). Augers, the largest of the hole-boring tools, served not only for general-purpose drilling, but also to remove much of the waste in mortises of large mortise-and-tenon joints before chopping out the remainder with chisels. Carpenters also used augers to drill holes for the large treenails or pegs used to secure architectural members. The three excavated augers examined appear to be "spoon" types, with approximately half-cylinder bodies terminating in closed cutting ends (Figure 6H and I).

Piercers were drill bits. When a bit was mounted onto the end of a crank-shaped wooden handle, it was considered to be "stocked" (what we today call a brace and bit). Stocked piercers were used to drill small holes, including those for pegs that held together the joints of small-scale objects. Gimlets, also used to drill small holes, look like small augers with their bits mounted in a wooden handle perpendicular to the blade. Although they drilled holes at a slower rate than a stocked piercer, because their handles had to be turned with intermittent twists of the wrist, gimlets had the advantages of being simpler, smaller, less expensive, and less time-consuming to fit with a handle. From one perspective, they were also handier, since their handles were permanently attached and their use did not require that they be interchanged in the stock each time a different size hole was required. Only one of the non-store inventories listed a gimlet, but the storekeeper Jonathan Hubbard had 186 in his 1671/2 inventory.

It is often difficult to differentiate between piercer bits and gimlets, as both were roughly the same size, and their working ends can be similar. Seventeenth-century examples of both tools have flat tangs. The principal difference between the two types may have been that the broad surface of gimlet tangs tapered to a point so that the tang could be riveted over to fix it into the handle (Figure 6R), while the tangs of piercer bits taper much less and have blunter ends (Figure 6Q). The poor condition of excavated examples precludes any firm conclusions about the form of the cutting edge of these drilling tools, but it is likely that they had either pointed or rounded, closed ends.

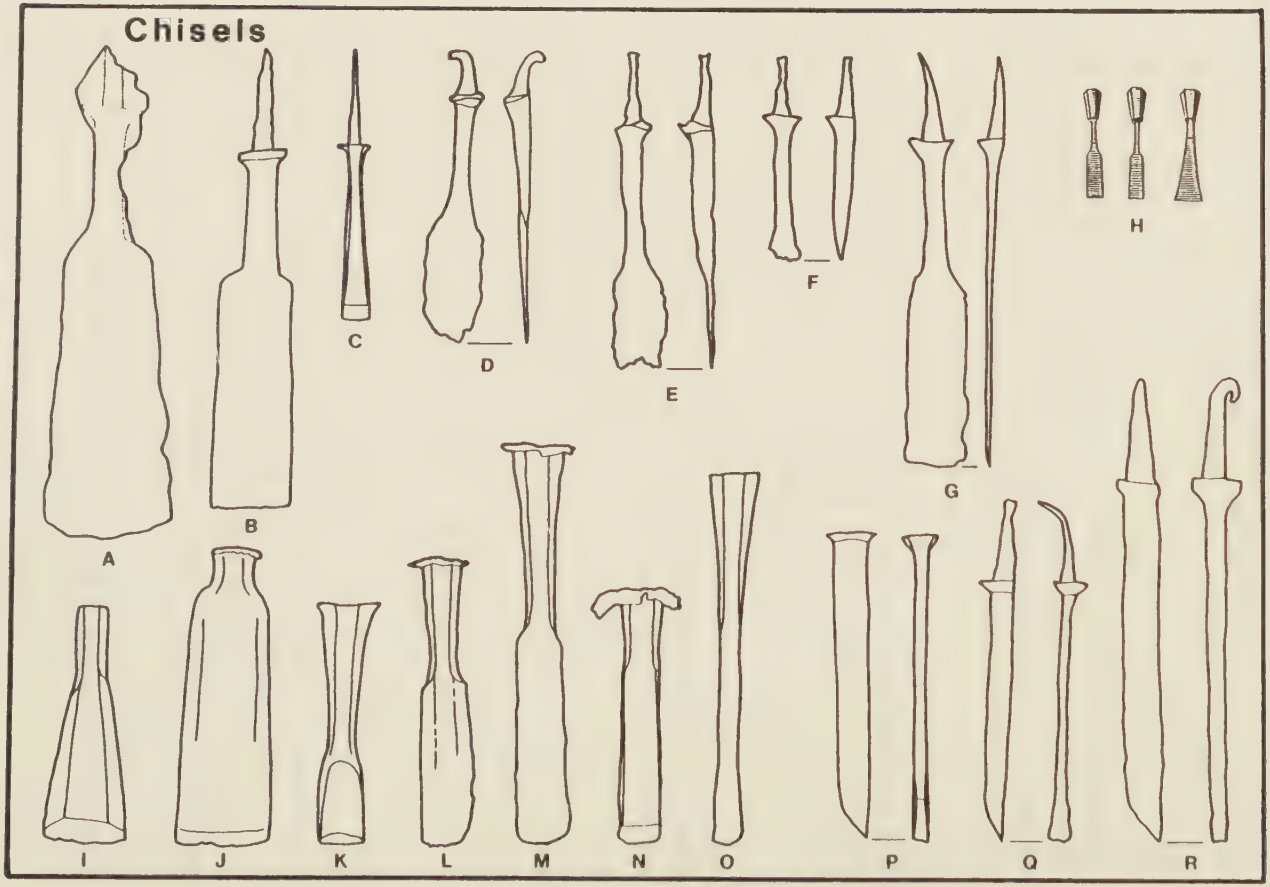

FIGURE 7. Chisels

CAPTION FOR FIGURE 7

TANGED CHISELS: A. Jordan's Point (44PG302/F-320 EU#889) 1620-35, tang-end encrusted and bolster and tang configuration approximate. B. Causey's Care (CC178/50A) 1680-1710. C. Drummond site (GL250B) 1680-1710. D. Jamestown (COLO J 5278, 96:100-152) no date. E. Jamestown (COLO J 1862, B87, Depth 4-5 ft.) no date. F. Flowerdew Hundred (44PG66/578J2-412) "Flowerdew Town" earthfast structure 1690-1730. G. St. Mary's City (ST1-23/72C/JF) 1678-ca. 1720. (All 1/4 scale.) H. Illustrations of tanged chisels from Moxon (1989) (not to scale).

SOCKET CHISELS: I. Portion of shank and blade only, Flowerdew Hundred (44PG65/193F/M-17) "Enclosed Compound" 1618-60. J. Portion of shank and blade only, Pettus site (KM82P-2) mid-to-late 17th century. K. Pettus site (KM110A) mid-to-late 17th century (this piece is actually a gouge). L. Drummond site (GL235M) probably late 17th century. M-O. Kings Reach (18CV83) 1690-1715. (All 1/4 scale.)

MORTISE CHISELS: P. Drummond site (GL222V) 1650-80. Q. Flowerdew Hundred (PG3/25) Flowerdew Hundred Plantation (surface) date unknown. R. Causey's Care (CC178/39/4B) pre-1665. (All 1/4 scale.)

TOOL MAINTENANCE

Seven of the inventoried estates contained grindstones and two included saw wrests (see Figure 8). Grindstones were used to sharpen all sorts of edged tools ranging from those for woodworking to agricultural implements. Saw tools consisted of a file, to shape and sharpen dulled teeth, and wrests, to bend the teeth slightly outward in an alternating pattern so that the saw cut was wider than the saw blade, thus preventing binding and making the saw easier to control. Small, round-headed wrests (Figure 8E and F), a type that apparently does not survive the 18th century as an English form, were used to set handsaws, while much larger and heavier, parallel-sided wrests were used to set cross-cut and pit saws.

THE CULTURAL IMPLICATIONS

While I would like to draw specific, detailed conclusions about domestic woodworking tool ownership and use patterns in 17th-century Virginia based upon this documentary and archaeological evidence, any attempt to do so at this point would be premature. As the small number of recovered artifacts and the broad range of sites from which they were retrieved suggests, we do not yet have sufficient material to undertake the quantification of data such analyses would require. Nevertheless, the information in hand about these tools suggests some broader, preliminary hypotheses regarding work, products, and economic and cultural ties with England.

The widespread ownership of axes, wedges, and froes indicates that chopping and splitting were among the primary activities of Virginians. The inventory data and the archaeological evidence together suggest that a majority of settlers were equipped to clear land and to reduce trees to firewood, rails, and rough structural components of buildings. Many colonists probably were proficient users of these tools. About 1608, John Smith noted that two gentlemen "within a weeke...became Masters, making it their delight to hear the Trees thunder as they fell." It took a bit longer, however, to toughen the "Gallants'" hands, since according to Smith, "the Axes so oft blistered their tender fingers, that commonly every third blow had a lowd Oath to drowne the Eccho" (Purchas 1906:499).

The widespread use of splitting, which is a wasteful but efficient way to reduce logs to usable wood, was practiced much less generally in England during this period than earlier (Forman 1988:35). The new Americans revitalized a technology well suited to their labor-scarce, timber-rich environment. Unlike

New Englanders who relied heavily on sawmills established on their fast-moving rivers and streams shortly after settlement, Virginians by and large continued to depend upon muscle power to convert logs to lumber throughout the century.

A second insight stems from the fact that while many individuals owned axes, froes, wedges, saws, and other tools for roughly converting trees to usable lumber, the probate inventories indicate that they tended to own only a few of the other tools needed to create products made of carefully fitted and joined wood. The inventories also suggest that even this sporadic ownership of chisels, boring tools, tenon saws, and hammers may have declined during the last quarter of the century. As a result, few of the decedents in our sample had the tools required to do more than the most rudimentary woodwork. In all likelihood, the majority of Virginians owned tools primarily to undertake rough work, such as: clearing; making fences, tobacco poles, plantation sheds, and agricultural tool handles; and maintaining equipment and buildings. They probably did not engage in the construction of furniture, complex agricultural implements, or houses. Construction of even a relatively simple, earth-fast "ordinary Virginia house" or the simplest joined furniture required considerably more tools, and more tool-using skills, than the average planter appears to have possessed (cf. Carson et al. 1981). While the typical tool owner probably could produce the roughly dimensioned materials needed to make these more elaborate products, most planters during this period must have turned to specialist artisans for their actual construction. The apparent decline in common ownership of tools for finer work toward the end of the century suggests that, as time went on, the dependence upon these specialized artisans may have increased.

While we have little direct information about the tool kits used by specialized artisans, we can make some educated guesses about them. Carpenters and joiners probably owned most, if not all, of the tools we have discussed. In addition, they required other tools for measuring, joining, and finer finishing. Adding several planes, a pair of compasses, and possibly an iron carpenter's square to the basic tool kit elevated it from a group of domestic woodworking tools to the purchased (as opposed to artisan-made) components of a standard carpenter's kit of the period (Goodman 1976:40-51). Those who engaged in even finer work, such as architectural joinery and the construction of furniture, also must have owned the even more specialized tools that we know were in Virginia. Based on archaeological finds, store inventories, and surviving products, these included: planes for smoothing, cutting joints, and decorating; measuring and layout tools such as rules, try squares, gauges, and chalk lines; and carving chisels and gouges. Coopers had specialized tools required in their trades, as no doubt did wheelwrights and turners. Many more inventories of

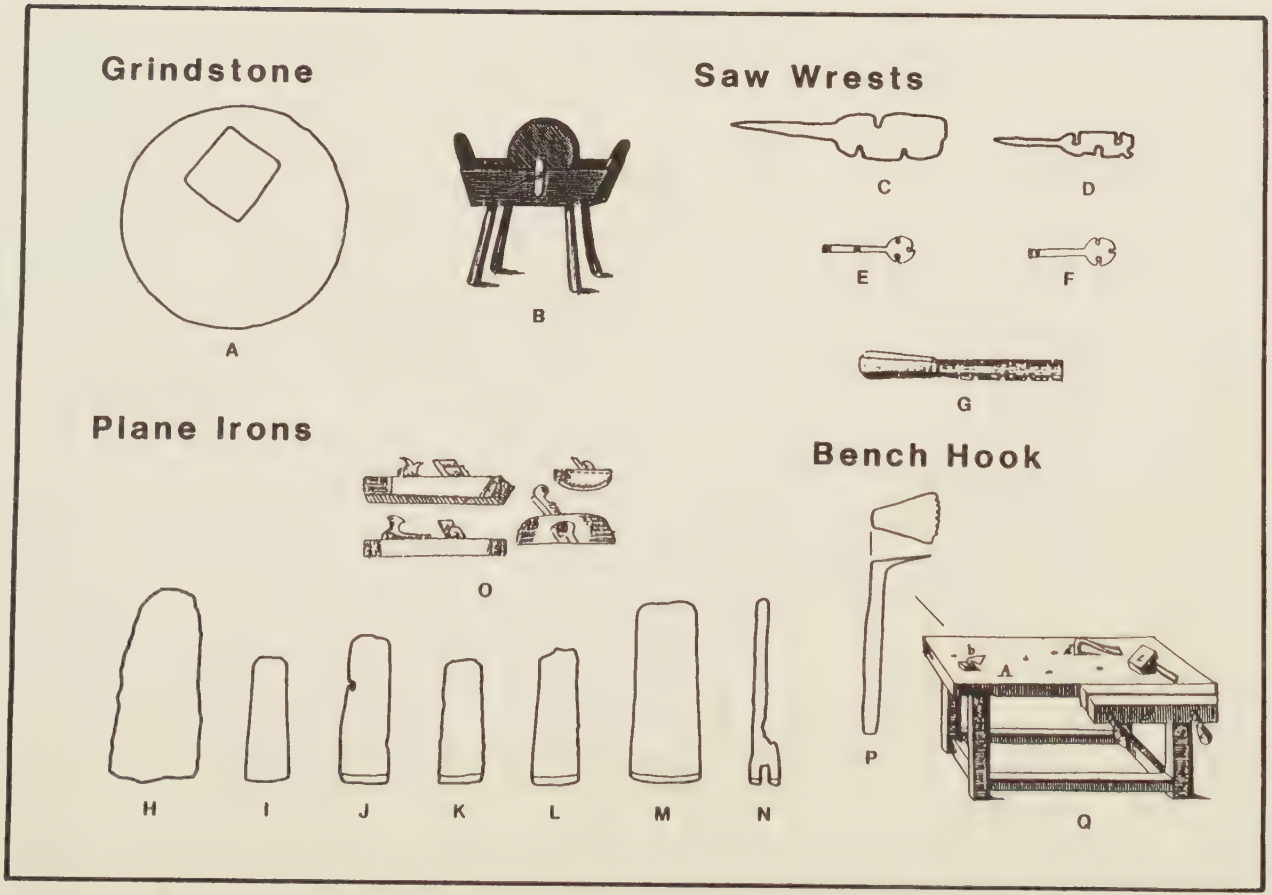

FIGURE 8. Grindstones, Saw Wrests, Plane Irons and Bench Hooks

CAPTIONS FOR FIGURE 8

GRINDSTONE: A. Drummond Site (GL442) late 17th century (1/8 scale). B. Illustration from Moxon (1989) (not to scale).

SAW WRESTS: C. Causey's Care (44CC178/39/2P) ca. 1665. D. Flowerdew Hundred (44PG66/508V2A3-27) "Flowerdew Town" earthfast structure 1690-1730. E. Drummond Site (GL250B) 1680-1710. F. Flowerdew Hundred (44PG66/508B1-92) "Flowerdew Town" earthfast structure 1690-1730. (All 1/8 scale.) G. Illustration from Moxon (1989) (not to scale).

PLANE IRONS: H. Jordan's Point (44PG302/F-320 EU#889) 1620-35. I. Flowerdew Hundred (44PG64/179Q) "Dwelling House" 1624-60. J. Chesopean Site (44VB48) (dug in the 1950s) probably 1625-50. K. Flowerdew Hundred (44PG64/179Q) "Dwelling House" 1624-60. L. Causey's Care (CC178/39/1L) ca. 1665. M. Causey's Care (CC178/6/8H) ca, 1665. N. Flowerdew Hundred (44PG65/193L1-6) "Enclosed Compound" 1618-60. (All 1/8 scale.) O. Illustration from Holme (1972) (not to scale).

BENCH HOOK: P. Flowerdew Hundred (44PG66/508B3/CD1-1) "Flowerdew Town" earthfast structure 1690-1730 (1/8 scale). Q. Illustration from Moxon (1989). The bench hook is shown at "b" (not to scale).

17th-century carpenters, joiners, and turners survive in New England records than those of Virginia (Goodman 1976:40-51; Forman 1988:39-62). While this reflects a more widespread practice of these trades in New England, it is likely that the tool kits employed by comparable artisans in both regions were similar.

We also can conclude that both artisans and homeowners had simple wooden tools and jigs of one sort or another. In the case of the planter, he almost certainly had a chopping block and various mallets or mauls and possibly a horse for sawing logs, a brake to hold wood that was being split, and a shaving bench to hold wood being shaped for shingles or tool handles. The specialist woodworker may have had these implements, as well as a workbench and its fittings. At least some woodworkers had lathes. Most of these tools probably were homemade, and there is little chance of anything more than a bench stop or a lathe center surviving in the ground.

One function we call upon archaeology to serve is to inform us about the activities that occurred at specific locations. The discovery of axes, wedges, and froes at the majority of sites excavated tells us only that chopping and splitting took place there. Pit saw fragments and chisels indicate somewhat more refined work, possibly the preparation of architectural building materials. In most cases we do not know what other tools were owned by a site's inhabitants, and the conclusions we can safely draw from the archaeological evidence are likely to be an understatement of the activities undertaken. In other cases, however, the evidence for finer or more specialized woodworking is indisputable. The cooper's ax, compasses (Figure 9F-H), and carving tools or gouges (Figure 9A-D) recovered at Martin's Hundred indicate that barrels and finer woodwork were made there. Plane blades found at Jordan's Point, Causey's Care, and the Chesopean site (Figure 8) suggest that either more finished woodworking was undertaken by their inhabitants or that they were storing tools for such work. The large plane blade found at Jordan's Point (Figure 8H) may be for a cooper's jointer. The tools recovered at Flowerdew Hundred, however, suggest the most sophisticated woodworking. Inhabitants there owned plane blades for smoothing (Figure 8I and K); a mortising chisel for cutting mortise-and-tenon joints (Figure 7Q); a plane for cutting the tongue portion of tongue-and-groove joints (Figure 8N); and most significantly, a bench hook (Figure 8P) that not only implies the presence of a joiner's bench, but the woodworking associated with it.

To this point, we have considered these tools strictly from the standpoint of their functions. If we look at them closely as objects in and of themselves, they reveal other aspects of life in the early Chesapeake. Based upon the evidence of Moxon (1989) and Holme (1972), most appear to be essentially of the same types and designs as those used in England during the latter 17th

century. The settlers in the Chesapeake brought their English tool kits with them, and despite some adaptations in the use of those kits to accommodate New World conditions, Virginia artisans on the whole continued the tool-using traditions of the mother country. That in turn implies that, while some Virginia products may have been comparatively rough and ready ones, they probably were most often those developed (or re-developed) in Virginia and made with adapted technology: rail fences, earthfast dwelling frames, and wall and roof coverings. Those products that conformed more closely to contemporary English models, such as furniture, architectural finishing work, and cooperage, would more likely have been made with a purer English technology and also probably to English standards of technical competence (Forman 1988:39-40). Students of material culture are in the process of determining to what extent the passage of time and increasing cultural distance from England altered Americans' approaches to making their own versions of essentially English products, but so far there is little evidence to be found for such differentiation in the 17th century based upon the tool kits employed.

Most tools found on Virginia sites appear to be commercially manufactured imports from Europe. Local blacksmiths may have routinely made some technically simpler tools, such as wedges and froes. The ax found at the Chesopean site (Figure 3D) was accompanied by the wedge-like drift used to form its eye, suggesting that it was a local product. Tools undoubtedly were frequently repaired and at least occasionally modified in Virginia. Still, based upon both store inventories and archaeological finds, the evidence suggests that, after the first hard years at Jamestown, the flow of basic tools from Europe was adequate, and they were readily available to the colonists. There was little economic incentive for 17th-century Virginians to manufacture these tools, and that remained the case throughout the 18th century.

The majority of excavated tools probably are of English manufacture. Even so, they display a variety of differences in details, such as ax eye and blade shapes, chisel shank and bolster designs, and hammer-head neck and claw configurations. As is the case with ceramics, many of these details reflect not only functional evolution, but also the manufacturing trends and customer preferences of specific English localities. Regional variations are well documented in 19th-century English tool catalogs (cf. Smith 1975). While no one has looked at a large enough sample of English tool forms of this period to definitively assign them to regional manufacturers, further archaeological research in that area may permit us to determine the areas in England from which these tools came. That in turn may assist us in analyzing the transfer of woodworking traditions to the Chesapeake. The few tools with legible makers'

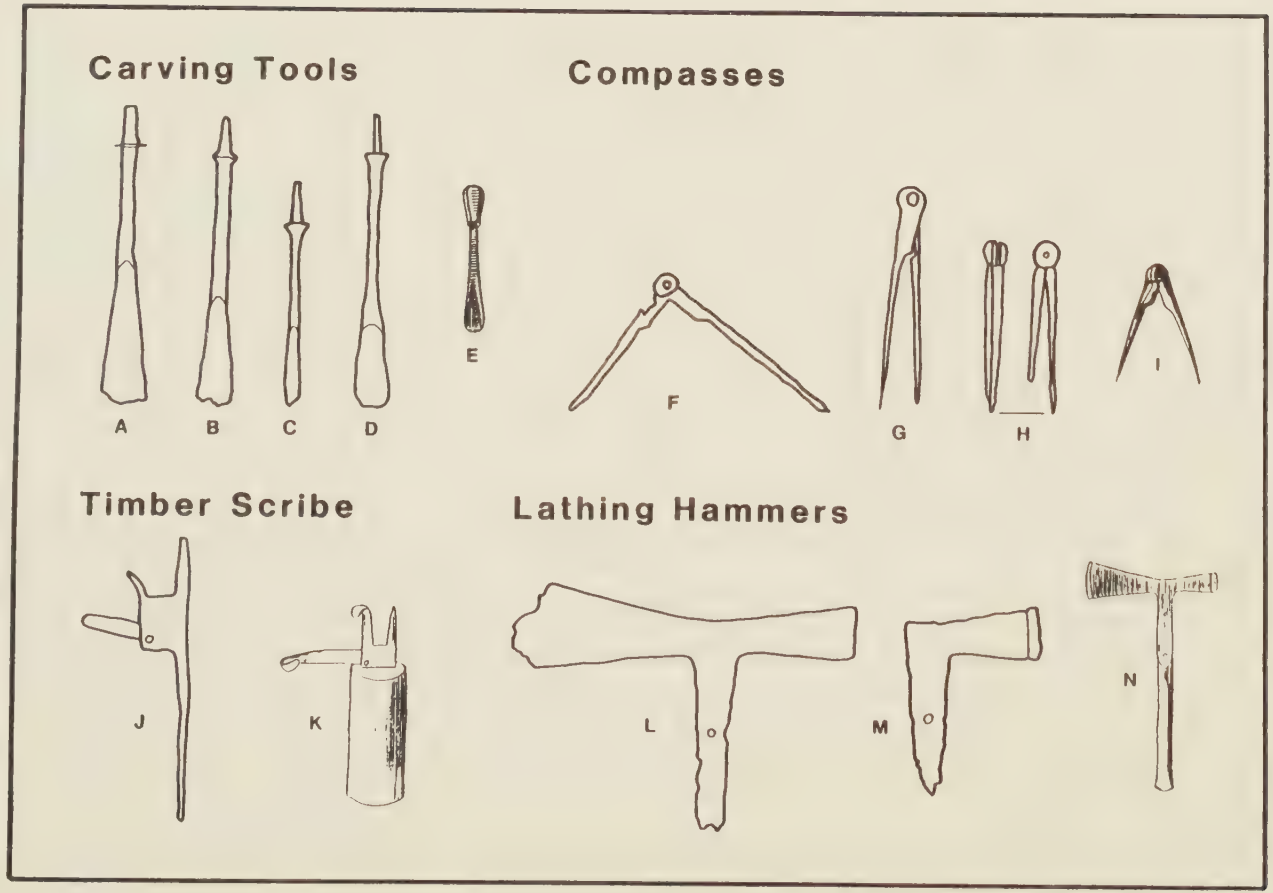

FIGURE 9. Carving Tools, Compasses, Timber Scribes, and Lathing Hammers

CAPTION FOR FIGURE 9

CARVING TOOLS OR BENCH GOUGES: A. Martin's Hundred (2129B) 1620-40. B. Martin's Hundred (3011E) ca. 1620. C. Martin's Hundred (4115E #145) ca. 1620. D. Martin's Hundred (4065 #1) ca. 1620. (All 1/4 scale.) E. Illustration from Moxon (1989) (not to scale).

COMPASSES: F. Martin's Hundred (3135A) ca. 1620. G. Martin's Hundred (4115A #125) ca. 1620. H. Martin's Hundred (3011H) ca. 1620. (All 1/4 scale.) i. Illustration from Moxon (1989) (not to scale).

TIMBER SCRIBE: J. Pettus Site (KM116) mid-to-late 17th century (1/4 scale). K. Illustration by the author (not to scale).

LATHING HAMMERS: L. Causey's Care (CC178/50B) pre-1665. M. Kingsmill Tenement (KM353C) early-to-mid 17th century. (Both 1/4 scale.) N. Illustration by the author (not to scale).

marks have the potential to reveal even more specific information about tool origins.

We cannot assume that all imported tools originated in England, however. Some excavated pieces have characteristics that we normally associate with Continental tools, such as the tang configuration and nose decoration of the Jordan's Point saw, the ornate detailing of the Flowerdew rivetting hammer, the round heads of small saw sets, and the curved ears of some of the axes. We need to look at these pieces more closely. They could reflect Virginia's early trade with the Dutch or, if they came to Virginia from England, they might give us some clues about 17th-century English tool manufacturing and tool trade in general.

Joseph Moxon copied illustrations for his plate of joinery tools from a French architectural book (Felibien 1676). As a result, most of the tools he pertrayed are of Continental design. Moxon may have believed that this was justified on the grounds that at least some woodworking tools used in England during the 17th century were Continental types. Many tools, especially those made by specialist toolmakers, such as blades, probably were imported into England from the Continent during the late 16th and early 17th centuries. Saw blades and hammers found on the Thames foreshore in London share characteristics with the Continental-like tools excavated here, and they are either Continental or strongly influenced by Continental forms.

By at least the mid-17th century, however, the English tool industry began to blossom, and imported tools and Continentally-inspired designs gave way to the patterns that we now think of as British. There is a possibility, for example, that hexagonal socket chisels were originally a Continental design. They were later made in England, certainly in Birmingham and possibly in London, but although they are common on early Virginia archaeological sites, they disappear by about the mid-18th century and are replaced by standard English round-socket chisels. That may be the result of the transfer of the edge tool industry from London and Birmingham to Sheffield. By noting such variations and changes in tool design we can begin to develop typologies of tools that allow us to better ascertain both European and colonial patterns of commerce. Such typologies also can help us date sites.

Archaeologically recovered tools also reveal information about tool manufacturing technologies and tool quality. Visual examination confirms, for example, that most edge tools were made of iron with steel cutting edges welded to them. More scientific metallurgical analysis of tools, a task Colonial Williamsburg is beginning in conjunction with a 1994 exhibit of 18th-century woodworking tools, will reveal the quality of the materials used to make them

and how well those materials were handled in the manufacturing process. We should, for example, be able to determine whether the saws used by Virginians were the cheaper all-iron types or the more expensive steel ones mentioned by Moxon (1989:95-96). That finding may in turn reveal the sophistication of Virginia tool purchasers.

Even a cursory examination indicates that some tools were either of poor quality or were severely misused. A number of recovered axes are broken through the eye, and many hexagonal socket chisels excavated from both 17th and 18th-century sites survive only as dismembered blades (Figure 7I and J) or sockets. Such evidence allows us to make some informed guesses about how well tools performed their intended functions. On the other hand, evidence of tool misuse may lead us to question whether or not their users knew how to use them. Or possibly, in a pinch, they gave a shrug and used an ax as a hammer, or struck it like a wedge, or used a chisel as a pry bar, hoping futilely for the best.

Archaeological tools show us, through damage or wear patterns, how pieces were used. They can also show how pieces were repaired and, upon occasion, how they were modified. As severe mushrooming of the sockets of chisels reveals, many colonists did not bother to fit them with wooden handles (Figure 7L-N). Mushroomed wedges indicate heavy use or that they were struck with an iron hammer or ax rather than the prescribed wooden mallet. The mortise chisel from Flowerdew (Figure 7Q) appears to have been reforged to make it wider, possibly to convert it to a paring chisel. If we find a specialized tool modified to make a more common one (or the opposite) or a tool remade into a different size, it suggests either that the required tool was not available or that an owner's tool needs were changing.

The use of tools as trade items and the Native Americans' persistent attempts to acquire them have much to tell us about the transfer of European technology to native inhabitants. We need to look carefully at the specific tools we find on post-Contact Native American sites to see exactly what aspects of European technology were adopted and adapted. We also need to begin looking at tools, especially homemade tools, found on slave sites to see if there are African influences.

Finally, there are some interesting bits of trivia. Froes must have been one of the more common tools in early Virginia, yet we unearth very few of them. While that might be because we are not looking in the right places, their rare survival may result from their being made totally of iron. When they broke, just about any local smith could easily repair them or make something else from them. Lathing hammers are relatively common finds on early Virginia sites. We

find some in 17th-century contexts (Figure 9L and M) and even more dating from the 18th-century. While their intended purpose was to cut to length and nail lathe for plaster, they are a handy general-purpose hammer and hatchet. Does their widespread presence indicate a comparable use of plaster, or is it more likely that these tools were the kitchen hammers of their day, ready for everything from splitting kindling by the hearth to pounding back together anything that happened to be loose?

Ultimately we need to do a lot more digging. We require a much larger sample of tools to test our first hypotheses. We need to look diligently for workshop sites that might contain more specialized tools used in the colony. Efforts to determine changes in tool forms and use over time necessitate that we investigate a much broader range of sites. Tools, albeit humble artifacts, made life in the early Chesapeake possible. Only through archaeology will we be able to determine exactly what those tools were and how 17th-century colonists used them.

NOTE

[1]This quotation is from Captain John Smith (Barbour 1986:225).

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I would like to thank David Harvey, Nancy Hagedorn, and Ellen Fitzgibbons for assisting with the survey of archaeological material. That survey of artifacts would not have been possible without the generous help of the institutions and many individuals who excavated the sites and curate the resulting collections, and I thank them all. Harold B. Gill shared unstintingly his incomparable collection of period documentation regarding 17th-century Virginia artisans and storekeepers. Nancy Hagedorn, in the course of her research for Colonial Williamsburg's forthcoming exhibit of 18th-century woodworking tools, gathered a sizeable portion of the documentary material presented here. Lorena Walsh and Jean Russo made research data available to me. Nancy Egloff and Marilyn Zeigler provided information about the ship Margaret. Trip Kahn assisted with the preparation of artifact illustrations, Dennis Pogue kindly produced the final artifact drawings, and Nancy Hagedorn again came to my aid with her editorial and data processing expertise. I wish to express my appreciation to them all, as well as the many others who have pondered this material with me.

Tools are illustrated courtesy of the following institutions: Martin's Hundred and Mathews Manor — Colonial Williamsburg Foundation; Chesopean site, Kingsmill Tenement, Pettus site, Drummond site, and The Maine — Virginia Department of Historic Resources (VDHR) and Jamestown-Yorktown Foundation; Jordan's Point — VDHR and Virginia Commonwealth University Archaeological Research Center; Causey's Care and Boldrup Well — VDHR; St. Mary's City — Historic St. Mary's City; Flowerdew Hundred — Flowerdew Hundred Foundation; Basse's Choice and Harbor View Fort — Virginia Company Foundation; Pasbehay site — James River Institute for Archaeology; Jamestown — National Park Service, Colonial National Historical Park, Jamestown Museum Collection; King's Reach — Maryland Historical Trust/Jefferson Patterson Park and Museum.

APPENDIX

Tools Listed in "The Cost of Furnishing the Margaret" July-September 1619

This list is compiled from an accounting made for investors outfitting the Margaret, a ship bound for Virginia to settle Berkeley's Hundred (Kingsbury 1933:178-179). It appears that many of the tools were purchased to prepare the ship itself and make clothing and equipment for the party of 35 men. Some, if not most, of the tools probably sailed with the ship for use in Virginia and possibly as Indian trade goods. If that is the case, the document provides a unique insight into the variety and quantity of tools imported into Virginia during the early years of colonization.

To Richard Godfry for his tooles brought downe wth him
200 of needles
Six pound of glue
Carvinge tooles for Rich Godfry
2 dozen of hatchets
4 rings for bittles [reinforcement rings for the heads of large wooden mallets]
7 wedges
3 hammers and round rings for chesils and other tooles [reinforcement rings for wooden handles for chisels permitting them to be struck with a hammer or mallet without splitting]
3 dozen di of rings more
2 crowes and one pickaxe [a croze is a tool for cutting grooves in barrels to receive the heads]
3 squaringe axes [broad axes for hewing]
4 chesils
3 Adises [adzes] and a spokeshave
17 borriers [borers: augers] and a drawing knife
2 handsawes
14 planinge irons and a hammer
one payr of spinsers [pincers?]
2 Cawkinge irons [caulking irons] and 5 formers [heavy chisels]
4 hatchets
6 hatchets
2 long sawes [pit saws?] 2 tenant saws [tenon saws: large back saws] & one file
8 iron wedges waighinge 46 li [pounds]

2 squires [squares]
Carpenters lynes [chalk lines]
6 compasses [dividers]
1 dozen of files
one dozen of nalle [awl] blades
4 whetstones
2 payr of taylors sheares
one dozen of wimble bits [drill bits]
one longe thirt sawe [thwart saw: a cross-cut saw?]
[nails of various types]
12 chesils and 3 gouges
2 drawinge knives and 2 knives to make trenchers
3 hatchets
3 axes
one handsawe
2 turning irons [turning tools?] one round spokeshave and one taper bit
a Coops [cooper's] hatchet and an axe, one borrier and an Adis
2 files and 2 plaininge irons
a spokeshave and 2 bench hooke
a cleaving saxe [a large, knife-like tool for riving]
3 small files 6 taylors thimbles and 1 li of wyer
2 pickaxes
2 sledges
2 bill hooke
2 tillers for sawes [iron brackets for pit saw handles] and six truels [trowels?]
2 gimlets
one payr of compasses
2 payr of plyers
one markinge punch [a letter or symbol punch for marking iron]
4 coold chisels
5 irons for scrues [dies for threading metal screws]
one longe pasture bit [?]
one small vice
21 li of chalke
halfe a pound of black lead
3 axes
one lave iron for the Couper [?]
one great playne iron [for a cooper's jointer?] one spokeshave and one tap bit
a hook bill

2 fromwards [froes]
2 sawes
a Coops [cooper's] knife
one holdfast
12 plaine irons
one payr of pinsers
a rubbinge skin [a fish skin for smoothing wood?]
4 skins for aprons
9 piercer bits [drill bits]
8 planinge irons
one piercer stocke [a "brace" for use with piercer bits]
2 rabbet plaines
12 skins for aprons
for bags to put nayles in
2 melting ladles
a compas, sawe, 2 chesils & a gouge
small tooles for the Cooper
a payr of scrues of his [Ferdinando Yate] wch he lent for the vse [use? vise?] about the ship at Tatcombe
30 spades
2 felling axes
one hatchet
2 li of wyer
a Carpenters hammer
2 small howes [howels used by coopers to shape the surface of barrels into which the croze groove was cut]
six awles
To William Peirse for a longe howe & axe helved [handled]
To Humfry Plant for a longe sawe. vs [with?] tiller wrest compasses squire line & reele
8 felling axes (besides 2 payd for by Richard Partridge) there [made in the forest of Deane]
Payd the det for lodginge and dyet to Eliz Hibbert of Gatcomb who detayned a rug & 2 axes
Payd Willm Clement for the releife of his wife in his absence and for redemption of his tooles that were pawned
Payd to Thomas Coopy upon an agreemt made at Stoke 7 September, a Smyth Carpenter & Turner
To Humphry Plant Carpenter & Sawyer for his 3 years wages beforehand to pay

his dets
To Richard Godfry of London Joyner upon a Composicon with him made
Payd for 4 squaringe axes bought in Wotton by Walter Coopy

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A SURVEY OF 17TH-CENTURY CHESAPEAKE CERAMIC TYPOLOGIES

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INTRODUCTION

> L'étude de toutes les céramiques retrouvée au moyen de l'éxcavation du Chesapeake pendant les quinze anneés passés est une tâche formidable. Elle été rendue difficile à cause du manque de recherches comparatives dans les publications archéologiques. Cette recherche interprétative a été inhiblé par l'absence de typologies établies de la céramique.[1]

This rather unorthodox method of beginning a paper that deals with 17th-century Chesapeake ceramic typologies may seem confusing and wholly inappropriate. If so, my introductory paragraph has produced the response for which I was hoping. By beginning in a foreign tongue I wanted to illustrate a major problem that confronts archaeologists and material culture researchers throughout the Chesapeake, namely, the lack of a consistent and recognizable language with which to uniformly identify and describe the ceramics that we excavate. Having worked on various 17th-century archaeological sites along the James River, I have been confounded on more than one occasion by a lack of consistency in the basic descriptions and identifications of domestically-produced and imported ceramics.

While analyzing the material from the 17th-century site located on the campus of Hampton University just a couple of years ago, the laboratory staff of the Department of Archaeological Research at Colonial Williamsburg attempted to place the ceramics and small finds from this site into a comparative framework with other contemporaneous sites along the James River. We wanted to make comparisons with assemblages excavated from Jamestown Island and also with the assemblage retrieved from the Causey's Care site near Hopewell. We had hopes of finding indications of internal trade networks along the James River as reflected by similar domestic and imported wares. All attempts to find either similarities or differences in the character of the assemblages were severely hampered. We could only compare the Hampton site with other James River sites on a cursory presence-or-absence basis because of the lack of consistency in the artifact records (Edwards et al. 1989). Sherds with no discernible visual differences were identified by a bewildering array of names, the meanings of which were not documented or the significance of which had been lost or obscured by time. My colleagues and I were unable to properly analyze sites which were separated geographically by only a few miles, but which might as well have been light years apart.

The importance of interpretative analysis can not be overstated. Without a means by which archaeological sites can be viewed within a comparative framework, we can never fully understand English adaptations in the 17th-century Chesapeake. Eminent archaeologists, such as J. C. Harrington and Ivor Noël Hume, have long advocated the need for interpretive analysis and public outreach based on the results of excavation projects (Noël Hume 1969b:194; Harrington 1979). Harrington spelled out the ground rules for site interpretation in 1979 when he stated that:

> Interpretation...is just as much a part of historical archaeology as digging, or analyzing artifacts, or studying historical records and vernacular architecture. I have even heard it argued, and with some justification, that if one is not going to interpret the evidence because of indifference of either the archaeologist or the sponsor of a project, or because of pressure to produce only an architecturally-oriented report, or from ignorance on the subject...then he has no right to dig in the first place (Harrington 1979:76).

The typological debate is nothing new in the field of archaeology. In the 1940s, archaeologists, particularly prehistorians, argued the merits and rationales

for building classification systems based on stylistic, historical, chronological, functional, and cultural criteria. Hill and Evans (1972:265) reviewed the various schools of thought on this subject and even though they did not support the concept of "standardized types" in general, they did "...support, with caution, the idea that standardized sets of attributes might be profitably recorded." They discussed at great length the merits and disadvantages of, not one, but multiple typologies designed to be responsive to specific programmatic research questions imposed on the data by the archaeologists and the nature of the sites under investigation.

Chesapeake archaeologists should take a tip from the hard sciences. Chemists and physicists have enjoyed the advantages of standardized terminologies, typologies, and procedures of analysis for generations. Scientists from all over the world can speak to each other with remarkable clarity and understanding. In sharp contrast, we can not speak the same language because we have not yet imposed upon ourselves the discipline to produce basic and universally-accepted (or even regionally-oriented) research tools, such as simple form and ceramic ware typologies. Even non-scientific disciplines, such as architecture, have developed and continue to develop common terminologies with which to record, study, and compare vernacular and high-style structures (Isham 1968). The need for and the advantages to be gained from a common archaeological language are obvious.

In 1984, Smolek, Pogue, and Clark listed over 200 17th-century sites that had been discovered in the Chesapeake. In the seven years since then, many more sites have been found and excavated. In the two counties of James City and York, and within the City of Williamsburg, 49 17th-century sites have been documented on state archaeological site registration forms (Meredith Moodey 1991, pers. comm.). Several of these have been fully excavated, but it is unlikely that they will be compared, because we do not yet have the ware type or vessel typologies that will allow us to do so.

There is much to be gained from research in this area. Going beyond the basic questions dealing with the work of specific potters and their dates of production, we have not yet fully investigated the spatial distribution of local and imported wares diachronically throughout the Chesapeake. Comparisons of domestic and imported wares have already been used to indicate status on many sites in the 18th century (Sussman 1978; Fairbanks 1984; Brown 1990), but this has not been done to the same degree for the 17th century. The distribution of identifiable ceramic wares is an excellent indication of internal and external trade networks throughout the Chesapeake. Sites with documented beginning and terminal dates throughout the region could provide the basis for a more closely

measured ceramic chronology. Broadly dated wares that have contributed little to our understanding of site evolution may become more tightly datable and provide new insight for site interpretation.

Locally-produced wares which exhibit European stylistic characteristics could be better understood with the use of such typologies. It should be possible to identify the products of individual itinerant potters or more sedentary pottery operations on more than just stylistic criteria. It is widely assumed that potters during roughly the first half of the 17th century were itinerants who had no permanent kiln sites. This being the case, we have yet to investigate the effects of temporary kilns on the quality, range of vessel forms, and durability of the wares. The wide range of physical appearance of ceramics fired under inconsistent conditions may yield invaluable information about pre-industrial pottery production. Systematic trace element analysis of clay deposits and fired samples might help to explain how 17th-century clay bodies were blended by potters. The use of tempering agents and ceramic fillers in various locally-produced wares could be defined geographically. The assemblages excavated from Martin's Hundred should prove invaluable sources as this site yielded a considerable amount of waster materials from pottery production (Noël Hume 1982).

As more permanent pottery sites became established later in the century, they produced larger quantities of distinctive wares. It should be possible to identify the work of specific potters in the 17th century in much the same way that Kurt Russ has done for 18th- and 19th-century potteries in Virginia (Russ 1984). Foodways research and studies relating to the function of vessel forms and wares could broaden our understanding of domestic tasks in relation to our perceptions of subsistence, trade, and craft activities. Comparisons of numbers of vessels and forms in light of the numbers of individuals in documented households could suggest the use-life of coarse earthenwares in relation to more refined imported earthenwares and stonewares.

We have not yet measured the effect of transportation systems connecting developing communities throughout the Chesapeake in relation to the distribution of commodities including local and imported pottery. Did the development of communities and commercial centers with more discriminating consumers affect the range of vessel forms available on the local market as the range of imported vessel forms increased? Can the shifts in consumption of locally-produced ceramics be related to the economic climate of the Chesapeake, as Henry (1979) attempted to demonstrate with locally-produced clay tobacco pipes? These and many other questions can be addressed as soon as a standardized method for identification is in place.

CERAMIC FORM TYPOLOGIES

Some work has already been done toward building standard typologies for ware types and vessel forms. The most notable and most widely used vessel form typology is that developed by Beaudry et al. (1983). Commonly referred to as the "POTS" typology, it was well defined and given wide circulation among archaeologists. More importantly, it was the first attempt to establish a standard nomenclature for ceramic vessel forms based on functional classifications. The "POTS" nomenclature is based on references in probate inventories of the period and inferred as appropriate descriptions of 17th and 18th-century vessel forms. This aspect of the article is a major advantage as it facilitates comparisons between archaeological assemblages and documentary records. The clear, concise manner in which the forms are presented makes this typology of form easy to use by archaeologists and simple to understand by the lay audience. The use of simplified graphics to illustrate the forms goes far toward dispelling the confusion between such generic terminology as mugs and tankards, jugs, jars, and bottles. Unfortunately, the "POTS" typology is still not universally used throughout the Chesapeake. The comparative analysis done by Yentsch (1990) could have been greatly expanded had the "POTS" typology been used by more scholars.

The "POTS" typology was the result of a collaborative effort among colleagues who saw the advantages of "...explicitness to facilitate functional interpretation" (Beaudry et al. 1983:20). They agreed on descriptive definitions by which vessel forms could be recognized and eventually standardized in the literature. The authors saw their work as:

> a means of informing colleagues in historical archaeology of the direction this research [was] taking...in the hopes of eliciting comments, suggestions, and shared information from others concerned with the problems of ceramic typologies and functional interpretations based on archaeological assemblages from historic sites (Beaudry et al. 1983:28).

They rightly saw the construction of form typologies as a fluid process that would require further refinement as our understanding of vessel form use in the Colonial period grew. Beaudry's (1980) work with the significance of material culture terminologies within cultural contexts adds yet another level of understanding of what we might call object-language. The collaborative effort undertaken to develop the "POTS" typology clearly shows what could be

accomplished if the same dedication and scholarship were applied to ceramic ware typologies.

CERAMIC WARE TYPOLOGIES

The need for ware typologies has been approached by a number of individuals, but in a much less concerted manner than used by Beaudry et al. (1983). Hudson created a ceramic typology for 17th-century pottery types in 1980. Unfortunately, it was not published and, therefore, not widely circulated. In it, Hudson lists the most common ware types, including: domestic and imported unglazed and plain lead-glazed earthenwares, slip-decorated and tin-glazed earthenwares, English and Continental stonewares, and Oriental porcelains. In addition, he provides brief descriptions of the wares and broad date ranges for each type. Hudson's typology is a useful tool in spite of the inexact dating. In 1982, Ann Brown took a further step in this direction with a basic compilation (unfortunately, also unpublished) of common ware types, including brief descriptions and attributed dates, largely based on work done by Noël Hume (1969a) and South (1977). Like so many independently-produced typologies, it is hampered by antiquarian terminology and does not address in any systematic way the ubiquitous locally-produced wares so common on 17th-century sites. Brown avoids the issue of locally-produced earthenwares altogether when she notes that:

> Redwares were locally produced from the mid 17th century on & are very similar to each other through time and space. Furthermore, local redwares copied English and European types. Therefore they are very hard to date. Usually, only the more distinctive English & European redwares can be dated with any confidence (Brown 1982:21).

Like many unpublished typologies, Brown's compilation perpetuates confusing and inexact terminology, such as "Metropolitan type trailed slipwares." This term is used to describe New England slipwares produced during the second half of the 17th century, but Brown (1982:22) fails to describe how these pseudo Metropolitan wares differed from the genuine article. The abundance of emic terminology, that makes most of these typologies of little use, seems to have been born out of what one might call ceramic identification tradition. Material culture researchers tend to perpetuate the terminology systems that they learned early in their careers. As many of these are based in antiquarian studies of ceramic

objects, they are not responsive to current anthropological fields of inquiry.

Published archaeological reports have been the best source for more definitive ware terminology. Miller and his colleagues at Saint Mary's City, Maryland, have produced reports which have gone far beyond the average effort in describing, illustrating, and provisionally dating imported and local wares in more objective terms (Miller et al. 1983; Miller et al. 1986). In 1989, Hurry and Miller presented the culmination of their attempts to describe the subtle differences between the local wares that are found on 17th-century sites in an unpublished paper. This paper not only sets forth criteria for the descriptions of paste and glaze using Munsell color designations, but also discusses surface decorations and provides information on the range of vessel forms represented in the wares.

All Chesapeake archaeologists can profit by the example of Hurry and Miller (1989). A collegial effort using the same observational criteria could produce descriptions and names of the wares found on all 17th-century sites throughout the region. A synthesis of these data would produce a universe of possible ware names from which the beginnings of a ware typology could be derived. Through comparison of these ware types and paring down of the various names by which they are identified, a broadly-based typology could be derived. At this point, we would be able to speak in similar dialects, if not yet in the same language.

Once we are agreed on the visual characteristics that define and differentiate ceramic wares, we must seek verification in a more objective, scientific means of identification. Any ceramic ware typology needs objective verification so that the parameters of variance in the physical appearance of the wares can be established. Techniques such as neutron activation, X-ray diffraction, and spectrographic analysis, which are currently used analytically in the physical sciences, can provide the level of objectivity needed to validate the visual observations of clay bodies. X-ray diffraction was used as early as 1965 by Patterson (1966), who used the technique to analyze brick, clay, and mortar specimens from Fort Raleigh, North Carolina. Clay samples and excavated tile fragments from the St. John's site at Saint Mary's City were also analyzed during the mid 1970s (George L. Miller 1991, pers. comm.). Spectrographic analysis to suggest the origins of domestically-produced, as opposed to imported, coarse earthenwares was done by Noël Hume (1982:105-107) during the late 1970s for the ceramics found at Martin's Hundred. Noël Hume found that there was a significant difference in the ratios of titanium to potassium in the pottery samples from North American sites when compared to those from England and Europe. While the results were not successful in differentiating between English sherds

from various pottery centers, the technique has the potential for further refinement and application to the problem of verifying a Chesapeake ceramic typology.

It is possible that this type of analysis could go a long way toward explaining the visual disparity in sherds resulting from incomplete firing or variances in kiln atmospheres, both of which contribute to the wide range of visual characteristics evident on coarse earthenwares. While this type of analysis carries with it the ideal of scientific objectivity, it unfortunately also carries a fairly high price tag. Individually, the majority of Chesapeake archaeologists do not have access to the sophisticated equipment needed to perform this analysis, nor to the funding to have their excavated sherds analyzed by outside consultants. Collectively, however, Chesapeake archaeologists have it within their power to take advantage of this technology to verify the visual distinctions used to identify ceramic wares. Securing funding for such a collaborative effort is the most difficult obstacle. But, whether funds to pay for ongoing analyses of ceramic clay bodies is provided through public or private grants or through contributions from regional archaeological organizations themselves, the advantages are obvious and well worth the expense if it means that, finally, we find ourselves in a position to say something definitive about 17th-century Chesapeake ceramics.

One of the most promising approaches to the problem has been undertaken recently by Davidson (1989). This approach, which should be considered as an adjunct to neutron activation, involves the study of the amount of light reflected from prepared surfaces of ceramic samples as a means of identifying wares produced from different clay sources. Davidson magnifies the polished surfaces of ceramic samples by a factor of 200. A video camera is used to store the images, which are analyzed and converted to represent an average reflective curve for each sample. These electronically derived "fingerprints" objectively characterize the ceramic wares and obviate the need for the purely subjective, visual methods of identification. By using this reflective index technique, it would no longer be necessary to classify wares based merely on the color, clay density, and visible inclusions, or on the color and surface characteristics of glaze to establish a basis of ceramic identification. It is entirely possible that new ceramic ware types which are not now discernible can be defined based on the reflective quality of the fired clay body. When used in conjunction with other testing techniques, like neutron activation, Davidson's work has the potential to make a significant contribution. Beyond the obvious advantages of removing the subjectivity from identification, Davidson's technique also has the advantage of being more affordable to a greater number of archaeologists in the region. While the technique has not been fully tested, it has

the promise of being an economical and objective means of unravelling the mysteries of early ceramic production in the tidewaters of Virginia and Maryland.

After a verifiable ceramic type collection based on objective criteria is defined, Chesapeake archaeologists will have a standard by which all ceramic wares could be compared. Whether visually or electronically sorted through the Davidson technique, we will have the advantage of a baseline for comparisons that is now sadly lacking.

CONCLUSION

To summarize, the study of ceramics from 17th-century sites throughout the Chesapeake over the past 15 years has yielded a considerable amount of data produced by many individuals. While this effort has been encouraging in many areas, it has not yet been approached in a cohesive and unified manner. The result is that no widely-accepted typology of ceramic wares or vessel forms has been produced. Chesapeake material culture researchers remain isolated; they cannot fully interpret their work because they have very little upon which to base a comparison. Even though the "POTS" typology appeared nearly a decade ago, it still is not universally used, nor has any refinement on this initial effort been attempted. The majority of site reports that have been produced in the past 15 years are "stand-alone" documents which record but do little to interpret the 17th-century Chesapeake. The efforts of a few scholars have made significant steps toward creating usable vessel form typologies, but much more concerted and focused effort is needed before a useful interpretive tool will be in place. The time is long past when the organizations which dig in the Chesapeake should have come together and agreed on a common language with which to describe ceramic wares and forms. With such a unified approach we could more easily share our information and make a significant contribution to our understanding and preservation of the cultural past of the 17th-century Chesapeake.

We must realize that we are not digging for ourselves, but for a much broader audience. Both the scholarly community and the public at large are interested in the type of cultural knowledge that only archaeology can provide. Ceramic typologies are tools by which this knowledge can be increased and better refined. This makes archaeology more useful and more valuable to other scholars and to the public. This is essential for the creation and support of a concerned and informed public, without which we, as preservationists, cannot hope to win the battle against the destruction of our archaeological resources by modern development.

NOTE

[1]Translation of first paragraph: The study of all the ceramics which have been excavated in the Chesapeake during the past 15 years is a formidable task. It has been made difficult because of a lack of comparative research in interpretive archaeological publications. This interpretive research has been hindered because of the lack of established ceramic typologies.

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STANDARD OF LIVING IN THE 17TH-CENTURY CHESAPEAKE: PATTERNS OF VARIABILITY AMONG ARTIFACT ASSEMBLAGES

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INTRODUCTION

For the majority of the Anglo-American inhabitants of the 17th-century Chesapeake, the picture of their "domestic lifestyle," or "standard of living," that has emerged from more than two decades of documentary research is one of "rude sufficiency" (Walsh 1979). For those at the very bottom of the social ladder, conditions were even worse, having been described as "remarkably, almost unimaginably, primitive" (Carson and Carson 1976). Even those fortunate few wealthiest households generally still lived in houses that, in comparison with those of their kin who remained in England, were small, dark, and drafty earthfast structures (Horn 1988a, 1988b). Finally, higher social standing was most often demonstrated simply by owning more of the same generally utilitarian possessions as those found in the homes of their poorer neighbors (Carson and Carson 1976; Walsh 1979; Main 1982; Carson 1984).

While archaeological research has contributed important supporting data for this interpretation — particularly in the domain of housing (Neiman 1978; Carson et al. 1981) — the analysis of probate inventories has been the main source for those insights. With the intensive excavation of many domestic plantation sites over the last two decades, and the appearance of a limited but growing number of excavation reports and other writing deriving from that work, it now is possible to begin to bring a broader archaeological perspective to

questions about how people lived in the Chesapeake during the 17th century.

As a beginning, artifact assemblages from more than 20 sites, together spanning almost the entire first century of settlement, have been analyzed and tabulated. While in general these data support the image of a decidedly plain lifestyle, significant exceptions are indicated. Most important, this evidence suggests that the "unimaginably primitive" living conditions that have been ascribed to households in the lower economic ranks may be a somewhat exaggerated image. When taken together with dietary evidence (Miller 1984, 1988), this suggests that daily life for even the lowest rung of Chesapeake society may not have been as nasty as portrayed by recent documentary scholarship.

Moreover, numerous scholars have pointed to the development by the second quarter of the 18th century of what has been described as a "consumer society" (Carson and Carson 1976; Main 1982; Carr and Walsh 1985, 1988). This shift has been characterized as a growing emphasis on the acquisition of consumable goods throughout all levels of Anglo-American society. The new acquisitiveness reflected desires for increased "comfort, attractiveness, and even elegance in living quarters and dress, for more arrangements for individual use of space and utensils, increased emphasis on manners and social ceremony," and on "concerns to be fashionable — all summed up by the word gentility" (Carr and Walsh 1988:137). The ability to act on these new desires was fundamentally the result of generally improving economic conditions for almost all elements of society. Finally, by the last decades of the century, a comparatively wealthy, native-born elite had developed (Shammas 1979; Main 1982). However, it is important to note the existence of telling exceptions to this trend, particularly among the growing numbers of enslaved Africans coming to the region and the declining Native American population.

This shift in patterns of consumption has been postulated by Deetz (1977) as occurring throughout Anglo-America, and which he further suggests as indicating a transformation in world view, to the Georgian from the Medieval, that he identifies as occurring throughout the American colonies by the mid-18th century. Analysis of Chesapeake material culture provides evidence to support interpretation of a burgeoning consumer society in the Chesapeake, but suggests that important movement in that direction was afoot considerably earlier — by the last decades of the 17th century (Stone 1990; Yentsch 1990, 1991).

The term "standard of living" is a complex mental construct, and carries with it the considerable baggage typical of general concepts that are sufficiently broad as to harbor myriad possible meanings. Most problematic of all is the implication of the existence of a living "standard," or a generally understood and agreed upon mode of living. One dangerous aspect of assuming such an

objective mutual understanding would be the tendency toward an over-simplification of the motives of 17th-century Anglo-Americans. If an ideal "standard" of living did exist, then the job at hand would be simply to identify what it was and then to assess how closely the households being studied came to achieving it. That the task is considerably more difficult than that should become apparent during the course of this paper.

Before examining the archaeological data, it seems helpful to consider analyses of the broader development of Anglo-American culture in the Chesapeake as a means of interpreting patterns in the material culture. In addition, as considerable research pertaining to standard of living has derived from inventory analyses, those findings will be discussed in some detail. The archaeological and inventory data then will be compared, and certain points of contrast, as well as intersection, between the two perspectives will be discussed.

THE CHESAPEAKE FRONTIER

The Chesapeake region during the course of the 17th century has been characterized as an agricultural frontier, with the frontier gradient model formulated by Casagrande et al. (1964) and others postulated as an explanatory paradigm that is appropriate for interpreting the development of Chesapeake Anglo-American culture (Keeler 1978; Miller 1984). Frontier colonization has been defined as an adaptive process, whereby an already established socio-cultural system is extended, replicated, or reintegrated in accommodation to a new ecological situation and to novel socio-political and economic arrangements. During this process, the colonizing culture must adapt to the new physical and social environment of the frontier — a fundamental cause of cultural change. This change is effected via an on-going process of selection, during which the results of past actions and assessments of their costs and benefits combine to produce what are perceived as appropriate responses (Casagrande et al. 1964; Miller 1984; Neiman 1990).

The historical profile for the Chesapeake has been interpreted as following the "classic" trajectory for permanent agricultural frontiers. Beginning with a small colonizing group forced to adapt to a remarkably different environment, followed by selective reinforcement of successful adaptive responses and a directional change toward stability, complexity, and sophistication. Staple-crop tobacco production, carried out in plantations dispersed along the navigable waterways, was the major economic adaptation, supporting a series of socio-cultural adjustments resulting in what has been postulated as the cessation of the Chesapeake as a frontier by the last decade of

the 17th century (Miller 1984).

According to this model, we should expect to see diachronic trends in material culture that reflect those phases in the colonization process: (1) "cultural impoverishment" and experimentation marking the transition from the Old World to the New, (2) general selection for the successful adaptations, combined with a relatively homogeneous society, leading to decreasing diversity between assemblages, and, finally, (3) by the end of the 17th century, increasing social stratification and renewed material culture diversity made possible by differential economic success.

CULTURAL IMPOVERISHMENT

The term cultural impoverishment here is defined as the abandonment of specialized, complex components of the cultural system as a result of the colonization process (Miller 1984:16-17). For example, Miller has examined faunal assemblages derived from more than a score of domestic sites in Virginia and Maryland that together span the 17th century. His analysis has been guided by an explicit reference to the frontier model, operating under the hypothesis that "since subsistence is one of the most crucial aspects in adaptation, it is expected to undergo change on frontiers in a manner commensurate with the process" (Miller 1984:372). Evidence for cultural impoverishment is inferred from greatly simplified agricultural and animal husbandry practices, better suited to an uncleared woodland area than to England. A more diffuse subsistence was employed as well, with a much greater reliance on wild resources than was the case at home. Over the course of the century, stability, uniformity, and complexity in subsistence increased, which is interpreted as reflecting the transformation of the Chesapeake from a frontier to a mature society (Miller 1984:372-376).

Horn's (1988a, 1988b) comparative study of everyday rural life in England and in the Chesapeake during the second half of the 17th century elaborates on the suggestion of cultural impoverishment implied by Miller's subsistence data. As a result of comparing probate evidence from St. Mary's County, Maryland, and the Vale of Berkeley, Gloucestershire, Horn concluded that with few exceptions the living conditions of the Marylanders was generally much lower than in England. The St. Mary's County inventory sample of 372 cases used by Horn is derived from research, undertaken by Historic St. Mary's City, which scholars over the years have manipulated as a major part of their data base (cf. Carson and Carson 1976; Walsh 1979, 1983; Main 1982; Carson 1984; Carr and Walsh 1985, 1988). Horn's overall interpretation of these data

is compatible with the interpretations of these scholars; and since Horn also compares his findings with similar evidence from England, that study has been selected for examination here.

According to Horn (1988a, 1988b), most Marylanders were found to lack such basic items as bedsteads to elevate mattresses off the floor, furniture for sitting, and tables for dining — all items that commonly are found listed in Vale of Berkeley inventories in all wealth categories (Table 1). The inventory data also indicate that in England housing for all levels of society was substantially better than for their Colonial counterparts. Horn (1988a:154) further maintains that, "two-thirds of Maryland planters lived in dwellings of a type usually found only among the poorest sections of English society." The syntheses of the archaeological evidence for Chesapeake housing carried out by Carson et al. (1981) and Neiman (1978, 1990) support the interpretation of earthfast housing as an expedient viewed by their builders as adequate only because of the extraordinary conditions encountered in settling the Chesapeake.

On the other hand, Miller's (1984, 1988) analyses of subsistence data suggest that diet in the 17th-century Chesapeake probably was more balanced and, therefore, generally healthier than in England. This was largely due to the opportunity for hunting wild game and the adoption of corn as a dietary staple. Whether the transplanted Englishmen actually preferred these new additions to their menu is difficult to determine, however.

Another notable exception to the generally negative portrayal of living conditions in the Chesapeake is in respect to the size of land holdings. Here Marylanders scored considerably higher than their English counterparts, with the mean size of tracts in the colony between 450 and 600 acres — holdings that would have been worth several thousand pounds in the Vale of Berkeley (Horn 1988a:148). The availability of cheap, fertile land was one of the salient attractions of the Chesapeake for England's land-poor populace, and that promise seems to have been actualized for those immigrants who survived their seasoning and lived long enough to settle their own plantations (Earle 1979; Main 1982). The question remains whether the trade of basic domestic amenities in exchange for the potential benefits represented by the opportunity to own land was considered a good one.

In addition to the absence in many Maryland households of such seemingly essential objects as tables, chairs, and beds, Horn (1988a) found that the items listed often were described as "old" or "worn." Such modifiers are extremely rare in the English inventories, suggesting that marginal objects continued in use in Colonial households long after they would have been discarded in England (Beaudry 1988:46). Other qualitative differences between

Household Items	Lowest	Middle	Highest
Brass	20.0%	62.9%	89.7%
Pewter	53.3	89.9	94.8
Ironware	73.3	91.0	94.8
Earthenware/Stoneware	13.3	49.4	75.9
Fine Ceramics	0.0	0.0	5.2
Knives	0.0	2.2	22.4
Spoons	26.7	23.6	44.8
Tables	6.7	52.8	89.7
Chairs	26.7	52.8	94.8
Beds	66.7	97.8	98.3
Bedsteads	6.7	40.4	77.6

TABLE 1a. Distribution of Household Equipment by Wealth Group in St. Mary's County, 1658-1699 (Horn 1988a:158)

Household Items	Lowest	Middle	Highest
Brass	81.1%	98.1%	98.6%
Pewter	83.8	98.1	98.6
Ironware	37.8	92.2	95.9
Earthenware/Stoneware	0.0	8.7	14.9
Fine Ceramics	0.0	0.0	0.0
Knives	0.0	0.0	2.7
Spoons	2.7	1.9	4.1
Tables	81.1	95.1	95.9
Chairs	40.5	86.4	98.6
Beds	97.3	100.0	100.0
Bedsteads	81.1	95.1	100.0

TABLE 1b. Distribution of Household Equipment by Wealth Group in the Vale of Berkeley, Gloucestershire, 1660-1699 (Horn 1988a:162)

the two communities include the composition of metal household items. In Maryland, less costly iron was by far the most common material for a variety of household utensils. In the Vale, fully 81.1% of the poorest households possessed at least one brass utensil and 83.8% had one pewter object; 98.1% of the households in the middle category owned brass and pewter. In Maryland, only 20% of the poorest households possessed brass and 53.3% pewter; the percentages increased to only 62.9% and 89.9% for the middle category (see Table 1).

Thus, the evidence provided by data on housing, diet, and the quantity and quality of household furnishings points to significant differences in conditions between the Chesapeake and England. Colonization of the new and alien Chesapeake seems the obvious cause of the lowered quality of life in the New World thus indicated.

INVENTORY BIAS

Several of Horn's findings, and those of various other scholars using inventories, suggest that certain important biases exist in this type of data. That inventory data are biased by the overrepresentation of the older and wealthier components of society is well documented. Richer people in almost any society simply were more likely to live longer and to have their estates subjected to probate than were poorer members. This bias has long been recognized, however, and its impact can be ameliorated by converting the data to proportional representations according to wealth category (Beaudry 1978; Carr and Walsh 1988).

The bias referred to here is of a very different kind, and one that seems to have important ramifications for the study of standard of living. That is, the problem of apparently habitual underrepresentation of certain types of objects in inventories. While the issue of underrepresentation has been touched upon by several scholars over the last two decades, the consensus reached has been that it is not sufficient to have significantly biased those findings (Stone 1977; Beaudry 1978, 1988; Beaudry et al. 1983; Yentsch 1990, 1991). For example, ceramics are present in only relatively small numbers in Chesapeake inventories. Numerous archaeologists who have manipulated inventory data in their work, therefore, accept the conclusion that ceramics were a minor component of the material culture of Chesapeake households (Stone 1977; Beaudry 1978, 1988; Beaudry et al. 1983; Yentsch 1990, 1991).

Watkins (1974) and Hawley (1989) suggest several possible reasons for the underrepresentation of certain types of objects in inventories, such as ceramics. These include surveyor bias (differing criteria for inclusion, personal

idiosyncrasy, and common error) and the purposeful omission of items, either because they were assessed at no market value or because they were designated as part of the inheritance of family members. But possibly the most likely cause of underrepresentation, and one which would seem extremely difficult to control for, is the lumping of certain materials under catch-all categories — the ubiquitous "parcell of lumber" and "group of kitchen ware," for example. Both Watkins (1974) and Hawley, at least, view this as a potentially significant cause of bias; and Hawley (1989:31) cautions that "Our ability to count pots and pans and hoes and hogsheads creates the illusion that inventory data may be much more substantive than they really are."

As examples, Hawley points to such items as hoes and knives. In the 221 Surry County inventories which she has examined, hoes are listed in only 34% and knives in less than 20% of the cases. Yet, hoes were essential in the cultivation of tobacco, the region's economic mainstay, and of corn, the principle staple of the Virginian diet. It seems incredible that two-thirds of Surry households really did not possess even a single hoe. Similarly, it is difficult to conceive of any household of whatever means being able to subsist for long without recourse to such an essential tool as a knife. Recall that the figure of 20% refers to the presence of any type of knife, not just table knives that might be inferred to correlate with wealth. Hawley (1989:28-29) suggests that both types of tool are underrepresented as a result of inclusion in such catch-all categories as "ironware" and "kitchenware."

As for the comparison between 17th-century Maryland and the Vale of Berkeley, several items seem equally likely to be underrepresented in the inventory samples for both areas. Most notably, in Maryland only 13.3% of the poorest households and 75.9% of the wealthiest are listed as having owned any ceramics made of earthenware or stoneware. Only 5.2% of the wealthiest households owned "fine ceramics," a category which includes tin-glazed earthenwares. None of the poorest and 22.4% of the wealthiest households owned table knives, while 26.7% of the poorest and 44.8% of the wealthiest households owned spoons. The results are similar for the Vale of Berkeley. Remarkably, none of the poorest and only 14.9% of the wealthiest households are reported as owning earthenware or stoneware, and none of the wealthiest households owned "fine ceramics." None of the poorest and only 2.7% of the wealthiest households owned knives. Finally, 2.7% of the poorest and an astonishingly low 4.1% of the wealthiest households owned spoons (see Table 1). However, the archaeological data, which will be presented below, support the inference that these materials actually existed much more commonly in Chesapeake households than the inventory data suggest.

If the same artifact types are underrepresented in both English and American inventories, then Horn's overall interpretation of the differences between the two groups may not be significantly affected. This presupposes that the level of underrepresentation for both sets of data are comparable, however, an issue that seems extremely difficult to address. At the very least, as a consequence of the apparent sample bias, assessments of living standards based on those data would be lower across the board than was the reality. Given that fewer objects are found in poorer households to begin with, any reduction of that total due to biased representation of such as ceramics, hoes, knives, and spoons, naturally would have a greater impact on interpretations of their lifestyle than it would in relation to wealthier households.

THE ARCHAEOLOGICAL EVIDENCE

As a means of balancing these inventory-derived findings, a sample of household-level, archaeologically-recovered artifact assemblages has been analyzed. As Chesapeake society during the Colonial period overwhelmingly was made up of household units — individual families and their bound servant and/or slave laborers — residing in dispersed plantations, the household is the selected unit of inquiry for this study. To be able to consider these data quantitatively, the sample should be representative of the population as a whole. In this case, most crucially, it should span the entire period under investigation, and include representatives from all wealth categories.

Even though a large number of sites have been intensively investigated, considerable limitations exist for the sample that has been assembled. First of all, in part as an exercise to measure the accessibility of such information, it has been limited generally to collections that are available in published form. To those have been added several collections for which the author has access to the finds lists and/or the artifacts themselves. As a result, domestic artifacts from 13 sites or major components of sites have been tabulated — referred to here as Group A (Table 2). In addition, detailed ceramic data for 19 assemblages also is available — Group B (Table 3). Information on 14 of those 19 assemblages derives from Yentsch (1990, 1991), with additional unpublished information generously furnished by her. That material, in turn, was provided by the investigators of the various sites. The remainder of the published data derives from limited distribution reports, a few articles, and Luccketti's (1990) thesis on Bennett Farm.

Both samples are sufficiently broadly distributed in time to enable identification of patterns inferred as diachronically associated. The limitation of

Site	State	Date	Source
(1) The Maine	VA	1618-1625	Outlaw 1990
(2) Site "H"	VA	1618-1622	Luccketti 1981, Noel Hume 1982
(3) Hampton	VA	1630-1670	Edwards et al. 1989
(4) Bennett Farm	VA	1645-1660	Luccketti 1990
(5) Compton	MD	1650-1680	Louis Berger and Associates 1989
(6) Mattapany-Sewall	MD	1665-1700	Pogue 1987
(7) 18 Cv 169	MD	1670-1690	Pogue 1991
(8) Clifts I and II	VA	1670-1705	Neiman 1980
(9) Clay Bank	VA	1680-1720	Noël Hume 1966
(10) Lightfoot	VA	1685-1700	Kelso 1966
(11) King's Reach	MD	1690-1715	Pogue 1990
(12) Pettitt	VA	ca. 1690	Chappell 1973
(13) Clifts III	VA	1705-1720	Neiman 1980

TABLE 2. Group A: Archaeological Sites Providing Data on Domestic Artifact Assemblages

Site	State	Date	Source
The Maine	VA	1618-1625	Yentsch 1990, 1991 Outlaw 1990
Pasbehay	VA	1625-1640	Yentsch 1990, 1991 Kelso 1984
Kingsmill Ten.	VA	1625-1650	Yentsch 1990, 1991 Kelso 1984
Hampton	VA	1630-1670	Edwards et al. 1989
Bennett Farm	VA	1645-1660	Luccketti 1990
Compton	MD	1650-1680	Louis Berger and Associates 1989
Utopia	VA	1650-1700	Yentsch 1990, 1991 Kelso 1984
Pettus	VA	1640-1700	Yentsch 1990, 1991 Kelso 1984
Clifts I	VA	1670-1685	Yentsch 1990, 1991 Neiman 1980
18 Cv 169	MD	1670-1690	Pogue 1991
Van Sweringen I	MD	1672-1700	Yentsch 1990, 1991
Drummond	VA	1680-1710	Yentsch 1990, 1991
Clifts II	VA	1685-1705	Yentsch 1990, 1991 Neiman 1980
King's Reach	MD	1690-1715	Sayer 1991
Van Sweringen II	MD	1700-1720	Yentsch 1990, 1991
Clifts III	VA	1705-1720	Yentsch 1990, 1991 Neiman 1980
Clifts IV	VA	1720-1730	Yentsch 1990, 1991 Neiman 1980
Hicks	MD	1730-1745	Yentsch 1990, 1991
Calvert	MD	circa 1730	Yentsch 1990, 1991

TABLE 3. Group B: Archaeological Sites Providing Quantifiable Ceramic Data

the overall sample size introduces substantial opportunity for error, however. Moreover, assessments of economic standing for the occupants of most of these sites is problematic at best. Therefore, it has been difficult to assign assemblages to different wealth categories in any systematic fashion. Even an ordinal scale discrimination — into high, middle, and low wealth categories — is problematical and has produced a distribution heavily skewed toward the middle. Given these admitted limitations, most of the patterns that will be discussed below must be considered tentative. Significant differences from the findings of the inventory analyses are readily apparent, however, and are so categorical in most cases that it is questionable whether they will be altered significantly by enlarging the sample.

The greatest differences occur in the representation of ceramics. Of the 13 sites tabulated for domestic materials, 100% have both fine earthenwares and coarse earthenwares and stonewares (Table 4). For the nine additional assemblages where more detailed ceramic data are available, all nine have both types of ceramics. In addition, for the 19 sites in Group B the ceramic analyses have resulted in a listing of the minimum number of vessels required to account for all sherds. Therefore, unlike the presence-absence listing prepared for the 13 sites comprising Group A, it is possible to compare actual frequencies of ceramic vessels found. Those totals range from 19 vessels at the Pasbehay site, a short-term occupation dating to the period 1625-1640 (Outlaw 1990), to 298 vessels from the Pettus site, dating circa 1640-1700 (Kelso 1984). For the 14 sites dating to the 17th century, the mean number of vessels is 83 (Table 5). Even if the 298 vessels from Pettus are subtracted in order to produce a more conservative figure, the mean for the remaining sites is 62. If non-food-related vessels were to be included, such as colanders, drug jars, galley pots, and others, the mean would increase somewhat. A mean of 62 vessels per site seems to reflect a significant number of ceramics in use, supporting the contention that ceramics were an important material culture category in the 17th-century Chesapeake (Watkins 1974).

One criticism of using total archaeological assemblages for this type of analysis is based on the reasoning that those materials more or less reflect the entire span of the site's occupation. According to this argument, for a site that was occupied for an extensive period, such as the approximately 70 years at the Clifts site, for example, the number of ceramics in use at any one time would be considerably less than the total number excavated. Separation of site assemblages according to temporal phases reduces this concern somewhat. For instance, the Clifts assemblage has been separated into four phases based largely on the seriation of ceramics found in trash-filled pits (Neiman 1980). In the Clifts

Site	Fin	Co	Knif	Sp	Pan	Pot	Wind	Cand	Crt	Furn	P/B	P/T
(1)	X	X	X	X	X	X	-	X	X	X	X	-
(2)	X	X	-	-	-	-	-	-	-	-	-	X
(3)	X	X	X	X	-	-	X	-	-	X	X	X
(4)	X	X	X	X	X	X	X	X	X	X	X	X
(5)	X	X	X	-	-	-	X	-	-	X	X	-
(6)	X	X	-	-	-	-	X	X	-	X	X	X
(7)	X	X	X	X	-	-	X	-	-	X	-	X
(8)	X	X	X	X	X	X	X	-	X	X	X	-
(9)	X	X	X	X	-	-	-	X	-	X	-	-
(10)	X	X	X	X	-	-	-	-	X	-	-	-
(11)	X	X	X	X	-	X	X	-	X	X	X	X
(12)	X	X	X	X	X	-	X	X	-	X	X	X
(13)	X	X	X	X	-	-	X	-	X	X	X	X

Totals:

Site	No.	Percentage
(1)	10	83.3
(2)	3	2.5
(3)	8	66.6
(4)	12	100.0
(5)	6	50.0
(6)	7	58.3
(7)	7	58.3
(8)	10	83.3
(9)	6	50.0
(10)	5	41.6
(11)	10	83.3
(12)	10	83.3
(13)	9	75.0

TABLE 4. Archaeological Sites in Group A with Selected Domestic Artifact Categories

Site	Prep/Stor.	Dist.	Consum.	Trad. Bev.	New Bev.	Total
The Maine	47%	11%	8%	34%	0%	88
Pasbehay	58	0	16	26	0	19
Kingsmill Ten.	47	10	27	16	0	77
Hampton	42	14	29	15	0	107
Bennett Farm	42	22	5	30	1	60
Compton	45	15	32	8	0	64
Utopia	56	5	13	26	0	57
Pettus	54	12	22	11	0	298
Clifts I	56	3	12	30	0	33
18 Cv 169	44	7	9	37	2	43

Van Swer. I	41	12	8	34	5	64
Drummond	37	14	16	17	18	102
Clifts II	53	13	9	25	0	30
King's Reach	52	6	11	26	3	118

Van Swer. II	15	17	12	36	18	54
Clifts III	24	21	15	34	4	67
Clifts IV	22	5	11	49	17	185
Hicks	29	9	6	38	20	266
Calvert	17	14	8	22	38	198

TABLE 5. Group B Ceramic Assemblages According to Functional Categories

Phase I, dated to circa 1670-1685, a total of 33 food related ceramic vessels have been identified; Phase II, from 1685 to 1705, has 30 vessels. In addition, certain sites are interpreted as having been occupied for relatively brief periods, and still have yielded significant numbers of ceramics. The best examples of that are the Maine, with a confidently dated occupation from circa 1618 to 1625, that yielded a minimum of 88 vessels (Outlaw 1990), and King's Reach, occupied from circa 1690 to 1715, with 118 vessels (Sayer 1991).

Therefore, of the 22 sites or site components for which ceramic data are available, each one has yielded both fine and coarse wares. In addition, at least a score of other 17th-century sites have been excavated over the last two decades, each of which has yielded both fine and coarse ceramics (Smolek et al. 1984). This is in strong contrast to the finding that coarse ceramics were listed for the poorest households in Maryland only 13.3% of the time, only 49.4% of the time for the middle category, and 75.9% of the time for the wealthiest households (see Table 1). Naturally, these findings would be more compelling if the archaeological data were more complete, with ceramics and other artifact types tabulated for a great many more assemblages, and with the findings arrayed according to site by wealth category. Even so, the present finding, that 100% of the sample of households that have been investigated archaeologically included ceramics, suggests that for the reasons discussed by Hawley (1989), ceramics are habitually underrepresented in inventories.

Luccketti (1990) compared the results of his excavation of the Bennett Farm site with a detailed probate inventory associated with that plantation. Based on an analysis of the inventory and other documentary data, Luccketti interprets Bennett Farm as the home of a planter of middling economic standing. He found that the 68 ceramic vessels recovered archaeologically was a significantly greater number than those listed in the inventory. The 68 vessels include tin-glazed earthenware, both English and Rhenish stoneware, English slipwares, and locally made earthenwares. In contrast, the inventory lists only an unspecified number of "earthen cups" (Luccketti 1990:53).

This discrepancy naturally leads to the suspicion that other types of objects also are underrepresented. The results of tabulating archaeologically-derived artifact types point to certain ones being more commonly in use than the inventories suggest. For example, table knives were found at 11 of the 13 sites and spoons were found at 10 of the 13 (see Table 4). Those frequencies are considerably higher than the findings from Maryland inventories, where knives are listed in only 22.4% of the wealthiest households and spoons in only 44.8% (see Table 1). Other categories that imply more common use than is indicated in the inventories are furniture tacks (11 of 13, or 84.6%) and brass or pewter

buckles (7 of 13, or 53.8%) (see Table 4). However, those proportions are not as discordant with the inventory data as are the ceramics and table utensils (see Table 1).

A total of 12 artifact types were selected for inclusion in an index to facilitate intersite comparative analyses. Those categories are: fine earthenware, coarse earthenware, table knives, spoons, frying pans, pots, window glass and lead, candle holders and snuffers, curtain rings, furniture tacks, pins and thimbles, and pewter and brass buckles and buttons (see Table 4). By adding the total number of categories represented according to site, it is possible to produce a comparative ordinal scale. Unfortunately, no generally diachronic pattern appears, and the lack of discrimination according to wealth categories inhibits more fine-grained analysis.

One somewhat surprising outcome of this exercise is the finding that the Maine site, occupied circa 1618-1625 (Outlaw 1990), and the earliest of the sites included in this sample, had a relatively high total of 10 of the 12 indexed categories represented (see Table 4). This includes a total of 88 ceramic vessels, both finewares and coarsewares, 15 table knives, and numerous spoons. Such a diversity and quantity of material culture seems surprising given the early period and limited time span that the site was occupied. Unfortunately, while several other sites dating to the first two decades of settlement in Virginia have been excavated (cf. Noël Hume 1982), little comparative data from them are readily available. The results from tabulating artifacts in those categories at Carter's Grove Site "H" are very different -- only three of 12 (Luccketti 1981) — but reporting bias is suspected as the cause.

The significance of these findings is readily apparent in reference to the study of living conditions, but also has broader methodological implications as well. First, it suggests that ceramics and certain other household items were more commonly in use in the Chesapeake than indicated by inventories. Therefore, interpretations of Colonial living standards that are based on inventory data alone are at least somewhat misleading. Moreover, archaeologists invest a disproportionate amount of energy in the often tedious task of ceramic analysis. Given the standard interpretation of the inventory evidence as indicating that ceramics were neither particularly numerous nor significant components of material culture, they have often felt compelled to go to great lengths to justify that activity (Deetz 1973; Stone 1977; Beaudry et al. 1983; Yentsch 1990, 1991). These findings suggest that those efforts are well worth the investment.

CULTURAL CHANGE ALONG THE TOBACCO COAST

The first decades of colonization after the initial spread of settlement beyond Jamestown, when the market for tobacco was rapidly expanding and its cultivation first began in earnest, have been likened to a gold-rush boom (Morgan 1975). The small and apparently casually constructed dwellings found at the Maine (Outlaw 1990) and other early sites such as at Carter's Grove (Noël Hume 1982) have been interpreted as reflecting a quest for quick profits and a corresponding hesitancy to invest in domestic comforts (Carson et al. 1981). The richness of the non-structural components of the Maine site material culture does not suggest cultural impoverishment, however, instead suggesting the importation of a relatively intact English material culture.

Deetz (1977) has postulated a three-staged development of Anglo-American culture, which together tracks the transformation from a Medieval to a Georgian world view. Deetz reasons that as a result of the naturally high proportion of English-born immigrants in the population during the first decades of colonization, that the culture that was transported and maintained during this period was more like that of the homeland than it would be again before the mid-18th century. As a consequence of a steady decrease in the proportion of foreign-born, combined with the ongoing process of selective adaptation, Anglo-American culture is postulated as diverging from the English over the course of the second half of the 17th and first decades of the 18th century. By mid-century, increased contact with England and improved economic conditions enabled renewed emulation of English culture, and brought American culture much closer to English norms than had been the case for more than a century (Deetz 1977).

According to this model, a period of initial adaptation when American culture would continue to incorporate English standards would likely be followed by major changes that might be interpreted as resulting in cultural impoverishment. The richness of the Maine site material might reflect that initial phase. Analyses of the process of adapting English norms for house construction to the Chesapeake also suggest an initial period of experimentation, followed by ongoing selection for the most successful responses (Carson et al. 1981; Neiman 1990).

The ceramic evidence also provides important supporting data for inferring the significant cultural change that occurred in the Chesapeake during the last two decades of the century. The 19 ceramic assemblages designated as Group B have been categorized according to functional groupings assigned by Yentsch (1990, 1991) as follows: preparation and food storage, food

distribution, food consumption, traditional beverages, and new beverages (teawares) (see Table 5). Changes in the proportions of the vessels comprising these categories show diachronic trends, apparently reflecting a major shift in foodways, that suggest an onset of a consumer society. For the 10 sites spanning the period circa 1618-1680, food preparation wares average almost half (49.9%) of the total assemblage, with beverages averaging only 24.5%. With the introduction of teawares and a proliferation of Staffordshire drinking vessels beginning circa 1680, the number and proportion of beverage containers increase. The period circa 1680 to 1700 marks a transition in terms of the composition of ceramic assemblages, with the average percentage of preparation vessels declining to 45.7% and combined beverages increasing to 32%. From circa 1700 to 1730, the proportions of food preparation vessels and beverage containers are virtually reversed from the early period, with only 21.4% food preparation and 55.2% combined beverages (Figures 1 and 2).

Yentsch (1990:35) points to these data as evidence for a "trend towards...the presentation of individualized servings of food and drink at dining." Deetz's (1977) citation of the increase in individualized dining vessels at New England sites is primary support for his Georgianization model. Deetz also postulates an increase in the proportion of other individualized dining vessels, such as plates. The proportion of plates to other food consumption vessels did not increase in the sample of assemblages examined by Yentsch (1990, 1991). The preferred material for plates during this period seems to have been pewter (Beaudry et al. 1983; Smart Martin 1989), however. The proportion of pewter plates could well have increased, and not be recognizable archaeologically.

THE CONFLUENCE OF ARCHAEOLOGICAL AND DOCUMENTARY DATA

Over the last two decades, the historiography and archaeography of the 17th-century Chesapeake together have made impressive strides in broadening and deepening insight into the development of Anglo-American society along the "Tobacco Coast." It almost goes without saying, however, that the balance of trade between the two groups has been largely one-sided in the direction of documentary history (cf. Tate 1979; Whittenburg 1987). In other words, while archaeologists have found much historical research to be of considerable utility in informing their work, little archaeological writing beyond the now classic studies of earthfast architecture (Neiman 1978; Carson et al. 1981) and Miller's (1984, 1988) analysis of subsistence have made much of an impression on Chesapeake historiography or on the writing of early Colonial history.

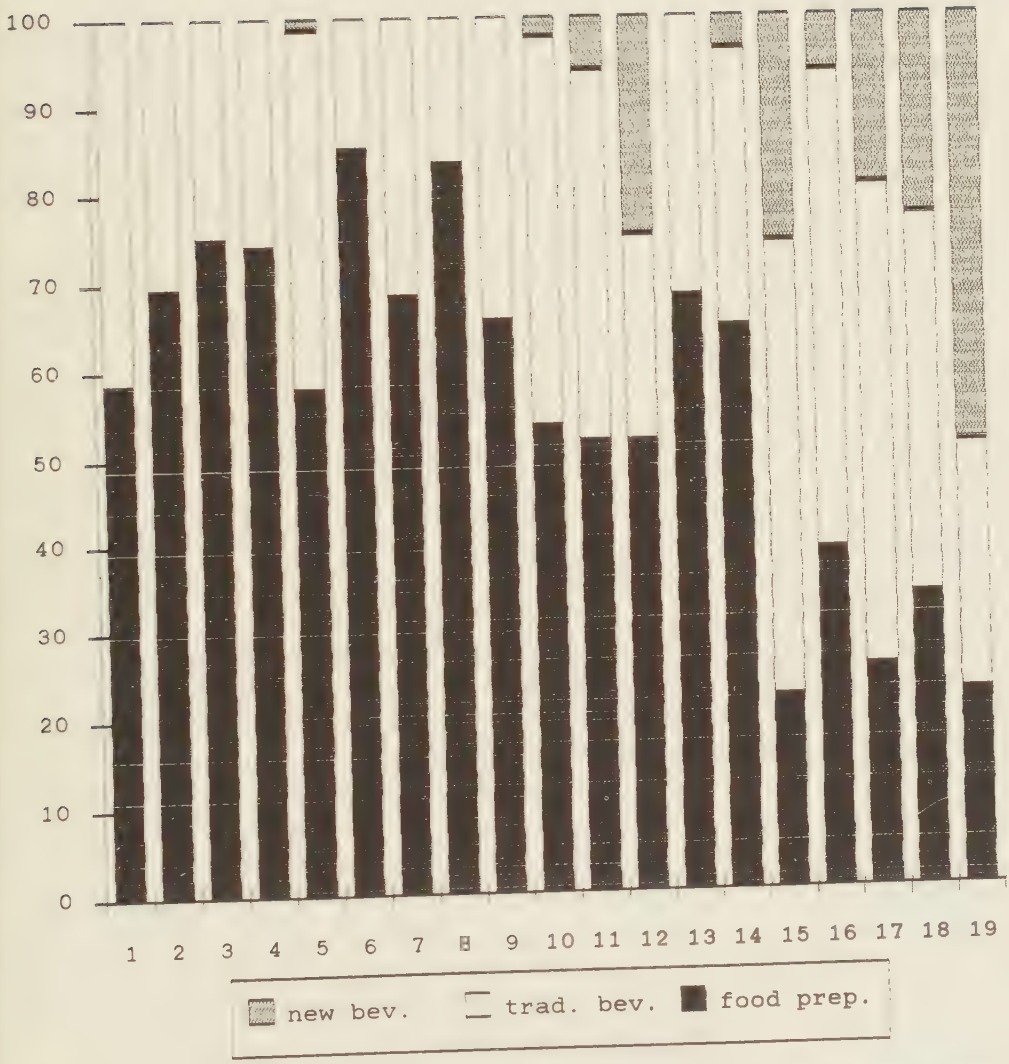

FIGURE 1. Group B Ceramic Assemblages According to Functional Type

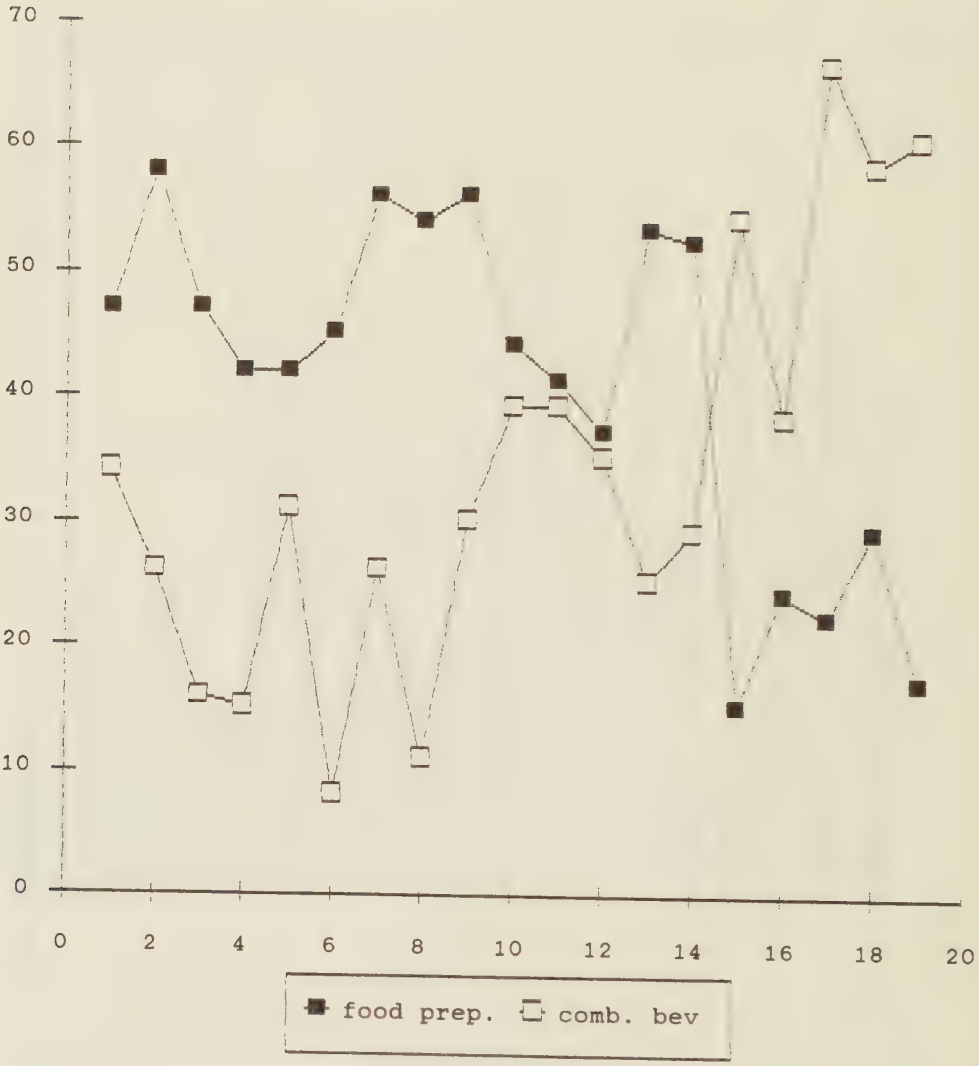

FIGURE 2. Group B Ceramic Assemblages Comparing Food Preparation and Beverage Vessels

As a result, and with those notable exceptions duly cited, Carson's (1978:42) now classic and oft-repeated observation, that "No matter what standard measure objective scholars use they can hardly avoid the conclusion that the study of artifacts has contributed to developing the main themes of American history almost not at all," remains almost as true today as it was 14 years ago. But even more regrettable is that a strong case could be made that material culture studies have not even made much of an impact on the secondary themes.

A review of the scholarly literature on the topic of standard of living offers support for this critique. Although several important and insightful treatments of the subject using ceramic data were written by archaeologists in the 1970s — such as Stone (1970) and Deetz (1973) for New England, and Stone (1977) and Stone et al. (1973) for the Chesapeake — the next decade witnessed few studies that significantly advanced the state of knowledge. Important exceptions to that observation are Beaudry et al. (1983) and, more recently, Yentsch (1990, 1991).

Analyses based on non-ceramic data are limited almost exclusively to architecture (Neiman 1978, 1990; Carson et al. 1981) and subsistence (Miller 1984, 1988). Only Noël Hume (1969, 1982) comes to mind as having dealt with the remainder of the types of domestic materials — pots and pans, forks and spoons, buttons and buckles, and the rest — that are recovered in great numbers from most 17th-century domestic sites, and which he has demonstrated to have considerable interpretive value. But while that scholarship provides an important source of basic comparative data, it still remains for someone to attempt a broad synthesis of 17th-century material culture as a whole.

In order to build on these limited but significant successes, and to address such obviously appropriate issues as standard of living, the usable archaeological data base must be expanded considerably. In some areas, this may mean digging more sites, but of much greater value would be systematic reporting on the large number of sites that have already been excavated. The sample of sites that has been assembled for this study is paltry.

Further, in order to be usable for comparative purposes, much greater precision is needed in how artifact data are presented. At this point any information is helpful, but much of it so far is in the form of illustrative highlights — incomplete and unquantifiable. Instead, along with ceramic sherd counts, what is needed are lists of minimum vessels and explicit discussions of how the vessels were attributed, as well as systematic descriptions and complete illustrations that, for example, will allow other scholars to differentiate table knives from utility knives. As it now appears that inventories seem to misrepresent the frequencies of certain artifact types, the archaeological record

is uniquely positioned to bridge that gap.

The call for a new "documentary" archaeology, or an historical archaeology that puts equal emphasis on the written word as well as on the archaeological record, has been made by numerous scholars over the years (cf. Deetz 1977; Stone 1977; Leone and Crosby 1987; Beaudry 1988; Schuyler 1988; Smart Martin 1989). Such a move seems an extremely logical and positive step for historical archaeology to take to maximize the unique advantages offered by the existence of the documentary record. These suggestions that inventories may not be as representative a source of data as has been claimed does nothing to change this view. To the contrary, it suggests that the confluence of the two sources of information, independently considered and contrasted with the other, is crucial to an improved understanding of this particular period in the American past.

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